A8630-2U (A) 12/87

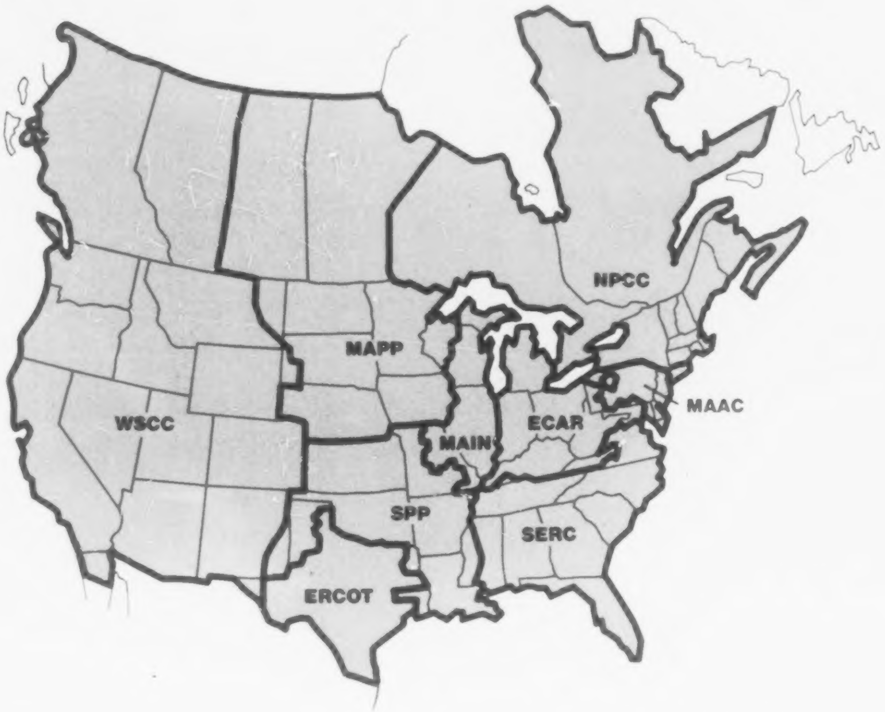
1987
ELECTRICITY SUPPLY & DEMAND

FOR 1987-1996

NOVEMBER 1987

North American
Electric
Reliability
Council

North American Electric Reliability Council



ECAR
East Central Area Reliability Coordination Agreement

ERCOT
Electric Reliability Council of Texas

MAAC
Mid-Atlantic Area Council

MAIN
Mid-America Interconnected Network

MAPP
Mid-Continent Area Power Pool

NPCC
Northeast Power Coordinating Council

SERC
Southeastern Electric Reliability Council

SPP
Southwest Power Pool

WSCC
Western Systems Coordinating Council

AFFILIATE

ASCC
Alaska Systems Coordinating Council

The North American Electric Reliability Council (NERC) was formed in 1968 by the electric utilities to promote the RELIABILITY of their generation and transmission systems. NERC consists of nine Regional Reliability Councils and one affiliate encompassing virtually all of the electric systems in the United States, Canada, and the northern portion of Baja California, Mexico.

RELIABILITY, in a bulk electric system, is the degree to which the performance of the elements of that system results in electricity being delivered to customers within accepted standards and in the amount desired. The degree of reliability may be measured by the frequency, duration, and magnitude of adverse effects on the electric supply (or service to customers.)

Bulk electric system reliability can be addressed by considering two basic and functional aspects of the bulk electric system — adequacy and security.

ADEQUACY is the ability of the bulk electric system to supply the aggregate electrical demand and energy requirements of the customers at all times, taking into account scheduled and unscheduled outages of system components.

SECURITY is the ability of the bulk electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system components.

Copyright © 1987 by North American Electric Reliability Council. All rights reserved.

ANNUAL DATA SUMMARY

1987
ELECTRICITY SUPPLY & DEMAND

FOR 1987-1996

FOR THE NINE REGIONAL RELIABILITLY COUNCILS
OF THE
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

CONTENTS

PAGE

I. INTRODUCTION 5

II. OVERVIEW 6

III. DEMAND

PEAK DEMANDS 8
- 1986 ACTUAL PEAK DEMANDS
- 1987-1996 PROJECTIONS
  - SUMMER
  - WINTER
- SUMMER/WINTER PEAK DEMAND RATIOS
- FORECAST UNCERTAINTY

ANNUAL NET ENERGY FOR LOAD 14
- 1986 ACTUAL NET ENERGY FOR LOAD
- 1987-1996 PROJECTIONS
- ANNUAL LOAD FACTORS
- FORECAST UNCERTAINTY

IV. SUPPLY

PLANNED CAPACITY RESOURCES 18
- SUMMER
- WINTER
- CAPACITY MARGINS

INSTALLED GENERATING CAPACITY 24
- SUMMER RATINGS
- WINTER RATINGS
- SUMMARY BY FUEL

ELECTRICAL ENERGY PRODUCTION 32
- TOTAL
- INTERNAL GENERATION
- IMPORTS LESS EXPORTS
- SUMMARY BY FUEL

FOSSIL FUEL REQUIREMENTS 40
- COAL
- OIL
- NATURAL GAS

PLANNED GENERATING UNIT CHANGES 47
- ADDITIONS
  - TOTAL
  - NUCLEAR
  - COAL-FIRED
  - HYDRO (CONVENTIONAL)
  - PUMPED STORAGE
  - OIL-FIRED
  - GAS-FIRED

CONTENTS (Continued)

PAGE

- OTHER (UTILITY)
- NON-UTILITY GENERATORS (NUGs)
- RETIREMENTS

V. **TRANSMISSION** 60

EXISTING TRANSMISSION SYSTEM--DECEMBER 31, 1986
- 230 kV & ABOVE
- AC & DC

PLANNED TRANSMISSION SYSTEM ADDITIONS (1987-1996)
- 1987-1991
- 1992-1996

PLANNED TRANSMISSION SYSTEM--DECEMBER 31, 1996
- 230 kV & ABOVE
- AC & DC

VI. **APPENDICES** 67

A. INSTALLED GENERATING CAPACITY

B. ELECTRICAL ENERGY PRODUCTION

C. FOSSIL FUEL REQUIREMENTS FOR COAL, OIL, AND NATURAL GAS

D. GENERATING UNIT ADDITIONS

E. NUCLEAR GENERATING UNIT ADDITIONS

F. COAL-FIRED GENERATING UNIT ADDITIONS

G. HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS

H. PUMPED STORAGE GENERATING UNIT ADDITIONS

I. OIL-FIRED GENERATING UNIT ADDITIONS

J. GAS-FIRED GENERATING UNIT ADDITIONS

K. OTHER (UTILITY) GENERATING UNIT ADDITIONS

L. NON-UTILITY GENERATOR (NUG) ADDITIONS

M. JOINTLY-OWNED GENERATING UNIT ADDITIONS

N. GENERATING UNIT RETIREMENTS

VII. **CODES AND ABBREVIATIONS**

GENERATING UNITS. . . . . **Last Page**

REGIONS AND SUBREGIONS . . . . **Inside Back Cover**

INTRODUCTION

The North American Electric Reliability Council (NERC) annually collects and publishes ten-year projections of electricity supply and demand of the nine Regional Reliability Councils. This **Electricity Supply & Demand** report provides this data for the 1987-1996 period.

The projections were developed by the nine Regional Reliability Councils and reflect conditions as of January 1, 1987. Data on peak demand, net energy for load, capacity resources, capacity margins, and planned additions and retirements of generating units have been extracted from the April 1, 1987 Coordinated Bulk Power Supply Program (IE-411) reports submitted to the U.S. Department of Energy (DOE) by each Regional Reliability Council. Data on generating capacity, electrical energy production, fossil fuel requirements, planned conversions of units from oil to coal, and existing and planned additions of transmission lines were reported by the Regional Reliability Councils directly to NERC.

Areas served by the nine Regional Reliability Councils are shown on the inside front cover of this report. Five of the regions -- MAIN, NPCC, SERC, SPP, and WSCC -- are broken down into subregions. The regional and subregional abbreviations used throughout this report are defined on the inside back cover.

Data for that part of the Comision Federal de Electricidad system in the northern portion of Baja California, Mexico, which is interconnected with the U.S. electric utility systems, is included under the category WSCC (Mexico) or NERC-MEXICO. Demand data for this NERC area of Mexico is complete, however, complete detailed generating capacity plans over the forecast period were not available.

This report also includes forecast bandwidths around the most probable peak demand and annual net energy for load projections for NERC-U.S. and NERC-CANADA. The projections for the United States and Canada are sums of the projections provided by the Regional Reliability Councils. The forecast bandwidths are intended to provide a better understanding of NERC's aggregated projections and to illustrate the uncertainty inherent in the forecasting process.

Future uncertainties, many beyond individual electric utility control, could change the underlying assumptions of these projections, the projections themselves, and the trends indicated.

Questions about this report may be directed to:

Virginia C. Sulzberger Director-Engineering	Colin L. Wright Engineering Analyst	William F. Gallagher Cooperative Education Student Electrical Engineering Drexel University

North American Electric Reliability Council

OVERVIEW
1987-1996 PROJECTIONS

DEMAND

PEAK DEMANDS (Thousands of MW)	SUMMER	1987	1996	Annual Growth Rate (%)
	NERC-U.S.	484	577	2.0
	NERC-CANADA	49	63	2.7
	NERC-MEXICO	0.7	1.2	6.6
	NERC-TOTAL	**534**	**641**	**2.0**
	WINTER	1987/88	1996/97	
	NERC-U.S.	444	534	2.1
	NERC-CANADA	68	86	2.7
	NERC-MEXICO	0.4	0.8	6.6
	NERC-TOTAL	**512**	**621**	**2.2**
PEAK DEMAND FORECAST UNCERTAINTY (Thousands of MW)	SUMMER	1987	1996	Annual Growth Rate (%)
	HIGH	509	681	3.3
	NERC-U.S.	**484**	**577**	**2.0**
	LOW	461	497	0.9
	WINTER	1987/88	1996/97	
	HIGH	72	97	3.3
	NERC-CANADA	**68**	**86**	**2.7**
	LOW	64	74	1.6
PEAK DEMAND RATIOS (%)	SUMMER/WINTER	1987	1996	Peak Season
	NERC-U.S.	109	108	Summer
	NERC-CANADA	72	73	Winter
	NERC-MEXICO	155	155	Summer
	NERC-TOTAL	**104**	**103**	**Summer**
NET ENERGY FOR LOAD (NEL) (Millions of MWh)	ANNUAL	1987	1996	Annual Growth Rate (%)
	NERC-U.S.	2,589	3,116	2.1
	NERC-CANADA	374	484	2.9
	NERC-MEXICO	3.2	5.9	6.8
	NERC-TOTAL	**2,966**	**3,606**	**2.2**
NEL FORECAST UNCERTAINTY (Millions of MWh)	ANNUAL	1987	1996	Annual Growth Rate (%)
	HIGH	2,702	3,669	3.5
	NERC-U.S.	**2,589**	**3,116**	**2.1**
	LOW	2,472	2,692	0.9
	HIGH	393	542	3.6
	NERC-CANADA	**374**	**484**	**2.9**
	LOW	353	417	1.9
SYSTEM LOAD FACTORS (%)	ANNUAL	1987	1996	TREND
	NERC-U.S.	61.0	61.6	Increasing
	NERC-CANADA	62.7	64.1	Increasing
	NERC-MEXICO	54.1	55.1	Increasing
	NERC TOTAL	**63.4**	**64.2**	**Increasing**

OVERVIEW
1987-1996 PROJECTIONS

SUPPLY

PLANNED CAPACITY RESOURCES (Thousands of MW)	**SUMMER**	**1987**	**1996**	**Annual Growth Rate (%)**
	NERC-U.S.	647	716	1.1
	NERC-CANADA	86	97	1.4
	NERC-MEXICO	0.8	1.2	4.5
	NERC-TOTAL	**734**	**814**	**1.2**
	WINTER	**1987/88**	**1996/97**	
	NERC-U.S.	668	727	1.0
	NERC-CANADA	87	101	1.5
	NERC-MEXICO	0.8	1.2	4.5
	NERC-TOTAL	**756**	**829**	**1.0**
ESTIMATED CAPACITY MARGINS (%)	**SUMMER**	**1987**	**1996**	
	NERC-U.S.	26	21	
	NERC-MEXICO	*	*	
	NERC-TOTAL	**28**	**23**	
	WINTER	**1987/88**	**1996/97**	
	NERC-CANADA	24	17	

		1987-1996					
		UTILITY					
PLANNED GENERATING UNIT ADDITIONS (Thousands of MW)	**SUMMER**	**NUCLEAR**	**COAL**	**HYDRO**	**OTHER**	**NON-UTILITY**	**TOTAL**
	NERC-U.S.	25.3	22.7	2.5	17.3	11.5	**79.3**
	NERC-CANADA	4.4	3.3	4.7	0.5	0.2	**13.1**
	NERC-MEXICO	0.0	0.0	0.0	0.5	0.0	**0.5**
	NERC-TOTAL	**29.7**	**26.0**	**7.2**	**18.3**	**11.7**	**92.9**

*Not available

TRANSMISSION

		1987-1996			
PLANNED TRANSMISSION ADDITIONS (Circuit Miles in Thousands)	**VOLTAGE LEVEL**	**NERC U.S.**	**NERC CANADA**	**NERC MEXICO**	**NERC TOTAL**
	230 kV (AC)	4.9	3.4	<0.1	**8.3**
	345 kV (AC)	5.3	0.4	0.0	**5.7**
	500 kV (AC)	2.8	1.6	0.0	**4.4**
	765 kV (AC)	0.0	<0.1	0.0	**<0.1**
	±250 kV (DC) and above	0.7	0.7	0.0	**1.4**
	TOTAL	**13.7**	**6.1**	**<0.1**	**19.8**

PEAK DEMANDS

The demand data includes 1986 actual and 1987-1996 projected electric peak demands for the nine Regional Reliability Councils and their subregions. All peak demands are 60-minute integrated demands. Contractually interruptible loads are included in the aggregations.

Within a region, the peak demands of individual electric utilities may occur in different months within a given season. Therefore, the peak demands for the NERC regions as well as for NERC-U.S., NERC-CANADA, NERC-MEXICO, and NERC-TOTAL represent aggregations of non-coincident utility peak demands.

The summer period includes June through September, while the winter period begins in December and runs through March of the following year.

1986 Actual Peak Demands

Table 1 compares the 1986 actual electric peak demands with those of 1985 and with the values previously forecast for 1986 for the NERC areas of the United States, Canada, Mexico, and NERC as a whole. The summer peak demand for the United States in 1986 was 3.6% greater than that in 1985 and was about 0.4% more than last year's forecast for 1986. In Canada, a winter peaking area, the 1986/87 winter peak demand was 0.1% above the 1985/86 peak but 1.1% less than forecast. In summer peaking NERC-MEXICO, the 1986 peak demand equaled the 1985 peak but was 3.9% less than forecast.

1987-1996 Projections

Details of the 1987-1996 peak demand projections for the nine Regional Reliability Councils and their subregions are shown in Tables 2 (summer) and 3 (winter). These tables also include 1986 actual peak demands and projected average annual peak demand growth rates. To be meaningful, the average annual growth rates are calculated over the nine-year period from the first (1987) to the tenth (1996) year of the projections.

The NERC-TOTAL aggregated summer peak demands in Table 2 show an increase of 106,740 MW over the 1987-1996 period -- corresponding to an average annual growth rate of 2.0%. The high summer annual growth rates for NERC-CANADA (2.7%) and NERC-MEXICO (6.6%) are offset by the NERC-U.S. annual growth rate of 2.0% (1.96%).

Table 3 shows that the NERC-TOTAL aggregated winter peak demands are projected to increase by 108,600 MW over the forecast period -- corresponding to an average annual growth rate of 2.2%. NERC-CANADA, a winter peaking area, has a summer peak demand growth rate equal to its winter peak growth rate. NERC-U.S., a summer peaking area, has a winter peak demand growth rate higher than its summer peak growth rate. The summer and winter growth rates for NERC-MEXICO are equal. Over the next 10 years, NERC-U.S., NERC-MEXICO, and NERC-TOTAL are projected to remain summer peaking areas and NERC-CANADA winter peaking.

Summer/Winter Peak Demand Ratios

Figure 1 illustrates the summer-to-winter peak demand ratios for the NERC regions as well as for NERC-U.S., NERC-CANADA, NERC-MEXICO, and NERC-TOTAL. The ratio, in percent, is calculated by dividing the summer peak demand for a given year (i.e., 1987) by the following winter (i.e., 1987/88) peak demand and multiplying the resulting ratio by 100.

The seasonal peak demand ratios range from the highly winter peaking NPCC (Canada) and MAPP (Canada) areas to the highly summer peaking NERC-MEXICO and SPP areas.

Figure 1 also shows that five of the nine NERC regions in the United States -- MAAC, MAPP (U.S.), MAIN, ERCOT, and SPP -- have faster growing winter peak demands than summer peak demands, although all five regions remain summer peaking throughout the 1987-1996 forecast period. ECAR projects essentially no change in its summer-to-winter peak demand ratios and is projected to remain a summer peaking region. In contrast, SERC, NPCC (U.S.) and WSCC (U.S.) are tending toward increased summer peaking regions.

In Canada, all three NERC regions are projecting faster growing summer peak demands than winter peak demands but all will remain winter peaking regions over the next ten years. NERC-MEXICO, or WSCC (Mexico), is a strongly summer peaking area with its summer peak over one and one-half times its winter peak.

Forecast Uncertainty

NERC's peak demand projections in Tables 2 and 3 are aggregates of the most probable forecasts of the reporting utilities. These regional projections represent the midpoints of probabilistic distributions of forecast values. That is, the likelihood of the projections in Tables 2 and 3 being exceeded is equal to the likelihood of these projections not being reached.

In order to provide a better understanding of NERC's aggregated forecasts of peak demand and to illustrate the uncertainty inherent in the forecasting process, high and low forecast bounds around the NERC-U.S. and NERC-CANADA projections have been defined as shown in Figures 2 and 3, respectively. These figures also show recent historical average annual growth rates. The forecast bounds, or sensitivity bandwidths, are defined such that there is about a 10% chance that demand will exceed the upper bound and about a 10% chance that demand will be less than the lower bound. That is, there is approximately an 80% chance that future peak demands for NERC-U.S. and NERC-CANADA will fall within their respective bounds.

The U.S. summer peak demand bandwidth of Figure 2 was developed from the U.S. energy bandwidth (described in the following section) by applying the projected annual load factors from the NERC aggregated base forecasts along with the historical U.S. relationship between actual peak demand and annual energy. The Canada winter peak demand bandwidth of Figure 3 was derived from the Canadian energy bandwidth (described in the following section) in a similar manner.

The NERC-U.S. peak demand bandwidth growth rates range from 0.9% to 3.3% per year over the forecast period. The comparable winter peak demand bandwidth growth rates for NERC-CANADA range from 1.6% to 3.3% per year.

It would be incorrect to apply the ranges of the peak demand forecast bandwidths shown in Figures 2 and 3 to the projections of any NERC region, subregion, or to any individual utility. The high and low bounds apply only to the NERC-U.S. and NERC-CANADA aggregated projections for peak demand.

TABLE 1

1986 PEAK DEMANDS

(Thousands of Megawatts)

SUMMER PEAK DEMAND	1985 Actual	1986 Actual	Actual Change (%)	1986 Forecast	Actual vs. Forecast (%)
NERC-U.S.	460.5	477.0	3.6	475.1	0.4
NERC-CANADA	44.9	46.9	4.4	47.1	-0.3
NERC-MEXICO[a]	0.62	0.62	0	0.64	-3.9
NERC-TOTAL	**506.1**	**524.5**	**3.7**	**522.8**	**0.3**
WINTER PEAK DEMAND	**1985/86 Actual**	**1986/87 Actual**	**Actual Change (%)**	**1986/87 Forecast**	**Actual vs. Forecast (%)**
NERC-U.S.	428.7	422.9	-1.4	434.8	-2.7
NERC-CANADA	64.1	64.2	0.1	64.9	-1.1
NERC-MEXICO[a]	0.40	0.39	-1.0	0.42	-5.5
NERC-TOTAL	**493.2**	**487.4**	**-1.2**	**500.1**	**-2.5**

a) Northern portion of Baja California, Mexico only.

Figure 1
SUMMER/WINTER PEAK DEMAND RATIOS (%)

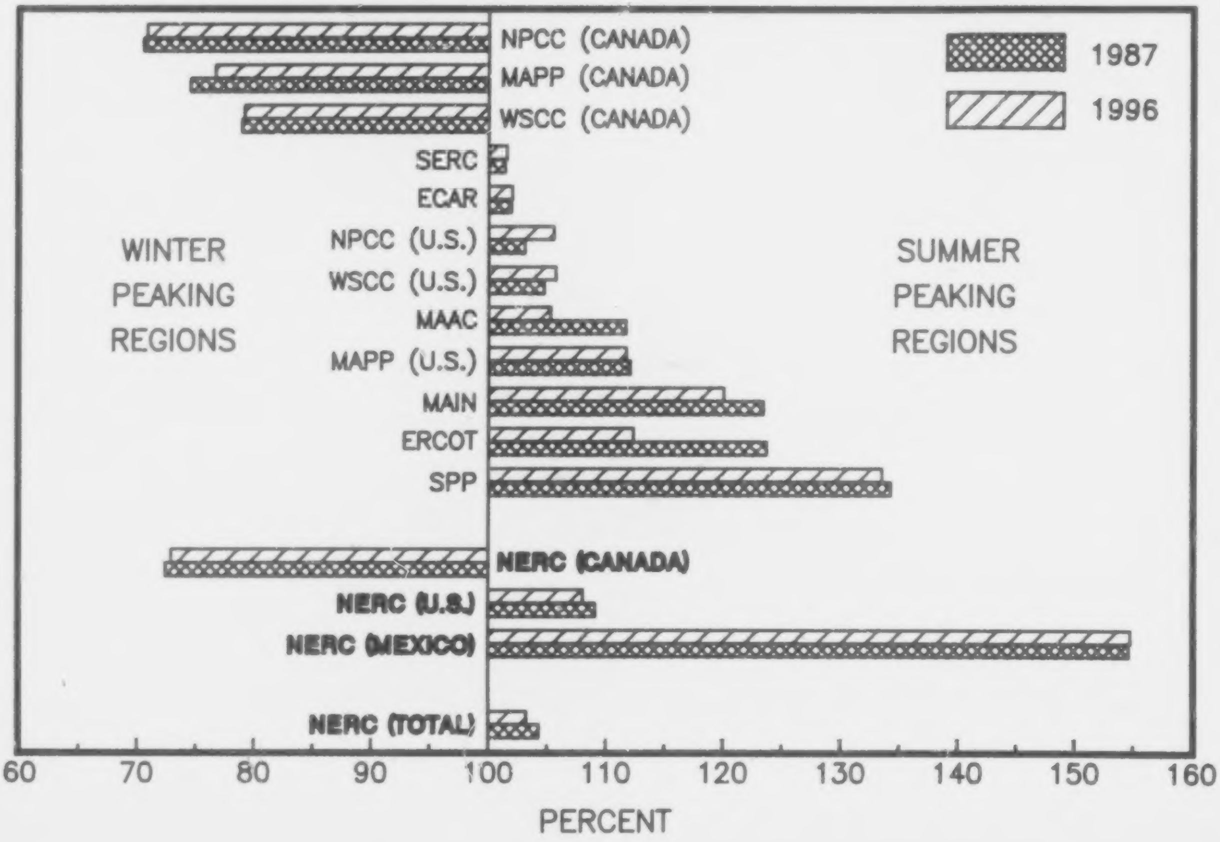


TABLE 2
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED PEAK DEMANDS - SUMMER - MW
(1987-1996 FORECAST)

	ACTUAL	PROJECTED										1987-1996 AVG. ANNUAL GROWTH(%)
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
NERC-U.S.												
ECAR	69606	70056	71603	73265	74340	75479	76662	77926	79250	80698	82081	1.8
ERCOT	39335	39072	39755	40904	42146	43444	44776	46211	47591	49029	50329	2.9
MAAC[a]	37564	38000	38544	39043	39481	39925	40398	40869	41336	41826	42355	1.2
MAIN	35943	36380	36948	37524	38109	38726	39377	40010	40631	41245	41883	1.6
CMNWLTH EDISON	15100	15550	15850	16150	16450	16800	17150	17500	17850	18200	18550	2.0
EAST MISSOURI	6583	6596	6678	6751	6843	6936	7039	7141	7224	7306	7399	1.3
S CENT ILLINOIS	6619	6617	6719	6758	6827	6883	6957	7018	7086	7148	7220	1.0
WIS-UPPER MICH	7641	7617	7701	7865	7989	8107	8231	8351	8471	8591	8714	1.5
MAPP	21039	21645	22079	22320	22687	22981	23354	23782	24181	24566	24949	1.6
NPCC	39026	41367	41931	42419	42956	43648	44481	45148	45847	46592	47447	1.5
NEW YORK	23006	23360	23800	24220	24700	25060	25420	25720	26030	26320	26620	1.5
NEW ENGLAND	16020	18007	18131	18199	18256	18588	19061	19428	19817	20272	20827	1.6
SERC	105570[b]	105770	108212	111390	113892	116839	119116	121337	123775	126458	129054	2.2
FLORIDA	23270	23332	23966	24515	25088	25663	26220	26840	27511	28320	28929	2.4
SOUTHERN	27164	26311	26920	27582	28050	28960	29383	29995	30597	31215	31837	2.1
TVA	19980	20107	20516	21550	22045	22492	22862	22903	23145	23493	23958	2.0
VACAR	35401	36020	36810	37743	38709	39724	40651	41599	42522	43430	44330	2.3
SPP	47123	46246	46876	47612	48562	49659	50848	51946	53127	54416	55442	2.0
SOUTHEAST	20783	19918	20113	20277	20669	21075	21650	22114	22635	23169	23607	1.9
WEST CENTRAL	15343	14997	15210	15515	15851	16295	16669	17043	17443	17950	18298	2.2
NORTHERN	10997	11331	11553	11820	12042	12289	12529	12789	13049	13297	13537	2.0
WSCC[b]	81787	85932	87608	90011	91764	93690	95645	97532	99604	101715	103604	2.1
NW POOL	25078	26663	27088	27663	28064	28396	28750	29160	29753	30242	30429	1.5
ROCKY MT-AREA	5903	6108	6307	6479	6634	6802	6970	7138	7315	7493	7669	2.6
ARIZ-N.MEX	10347	10992	11492	11871	12206	12569	12958	13380	13778	14130	14509	3.1
CALIF-SO.NEV	40965	42815	43373	44602	45403	46410	47462	48360	49387	50479	51521	2.1
TOTAL(U.S.)	476993	484468	493556	504488	513937	524391	534657	544761	555342	566545	577144	2.0
NERC-CANADA												
MAPP	3896	4099	4449	4604	4750	4880	5009	5153	5293	5408	5518	3.4
NPCC	33508	35000	35920	36976	38043	39091	40192	40982	41868	42933	43965	2.6
NEW BRUNSWICK	1425	1458	1487	1531	1575	1616	1657	1697	1737	1776	1814	2.5
NOVA SCOTIA	1083	1093	1114	1167	1221	1254	1300	1340	1374	1412	1431	3.0
ONTARIO	16882	17332	17860	18301	18737	19136	19427	19704	20040	20435	20846	2.1
QUEBEC	14118	15117	15459	15977	16510	17085	17808	18241	18717	19310	19874	3.1
WSCC	9496	10214	10565	10849	11220	11523	11880	12148	12534	12900	13361	3.0
TOTAL(CANADA)	46900	49313	50934	52429	54013	55494	57081	58283	59695	61241	62844	2.7
NERC-MEXICO												
WSCC	619	682	735	786	877	929	1001	1050	1102	1157	1215	6.6
TOTAL(MEXICO)	619	682	735	786	877	929	1001	1050	1102	1157	1215	6.6
NERC-TOTAL	524512	534463	545225	557703	568827	580814	592739	604094	616139	628943	641203	2.0

a) Peak demands are coincident. Contractually interruptible loads are (subtracted) not included.

b) The sum of the subregional peak hour demands do not necessarily equal the coincident regional total because of subregional peak load diversity.

TABLE 3
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED PEAK DEMANDS - WINTER - MW
(1987-1996 FORECAST)

	ACTUAL	PROJECTED										1987/88-1996/97 AVG. ANNUAL GROWTH(%)
	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	
NERC-U.S.												
ECAR	64561	68721	70160	71368	72520	73679	74905	76216	77656	79085	80447	1.8
ERCOT	28730	31581	32707	34029	35441	36862	38435	39952	41539	43142	44787	4.0
MAAC[a]	32807	34017	34802	35449	36153	36822	37524	38223	38899	39568	40226	1.9
MAIN	28036	29469	30080	30640	31231	31869	32455	33068	33656	34255	34878	1.9
CMNWLTH EDISON	11241	11670	11900	12140	12380	12630	12880	13140	13400	13670	13940	2.0
EAST MISSOURI	4729	5250	5404	5556	5708	5890	6052	6224	6366	6508	6670	2.7
S CENT ILLINOIS	5288	5568	5658	5747	5830	5925	6010	6100	6187	6281	6378	1.5
WIS-UPPER MICH	6778	6981	7118	7197	7313	7424	7513	7604	7703	7796	7890	1.4
MAPP	18850	19310	19584	19866	20175	20519	20911	21266	21618	21959	22323	1.6
NPCC	37976	40129	40522	40946	41285	41872	42491	43042	43587	44201	44942	1.3
NEW YORK	20468	21600	21980	22420	22780	23160	23460	23780	24080	24380	24720	1.5
NEW ENGLAND	17508	18529	18542	18526	18505	18712	19031	19262	19507	19821	20222	1.0
SERC	101849	104299	107289	109687	112048	114501	116594	119268	121988	124394	127054	2.2
FLORIDA	25501	26028	26719	27510	28066	28612	29287	30297	31344	31946	32446	2.5
SOUTHERN	21810	22404	22755	23164	23622	24109	24549	25018	25468	25913	26526	1.9
TVA	19832	20088	20972	21328	21753	22105	22133	22359	22662	23210	23760	1.9
VACAR	34706	35779	36843	37685	38607	39675	40625	41594	42514	43325	44322	2.4
SPP	33877	34433	34712	35474	36280	37245	38066	38989	39888	40660	41515	2.1
SOUTHEAST	14726	14999	14919	15186	15510	15861	16156	16533	16876	16974	17290	1.6
WEST CENTRAL	11006	11033	11233	11516	11816	12227	12558	12900	13256	13727	14053	2.7
NORTHERN	8145	8401	8560	8772	8954	9157	9352	9556	9756	9959	10172	2.1
WSCC[b]	76171	82040	83904	86015	87826	89523	91274	93180	94901	96960	97978	2.0
NW POOL	30894	34905	35556	36459	37043	37562	38077	38687	39350	39863	38946	1.2
ROCKY MT-AREA	5797	6000	6331	6482	6666	6835	7013	7193	7416	7597	7522	2.5
ARIZ-N.MEX	7796	8096	8362	8622	8887	9159	9446	9731	9983	10258	10392	2.8
CALIF-SO.NEV	31684	33830	34415	35355	36076	36937	37627	38479	39343	40036	41118	2.2
TOTAL(U.S.)	422857	443999	453760	463474	472959	482892	492655	503204	513732	524224	534150	2.1
NERC-CANADA												
MAPP	5243	5499	5797	6001	6212	6392	6563	6730	6910	7060	7199	3.0
NPCC	47185	49614	50952	52217	53638	55172	56526	57784	59214	60781	62075	2.5
NEW BRUNSWICK	2049	2141	2205	2283	2363	2438	2511	2580	2648	2714	2776	2.9
NOVA SCOTIA	1431	1450	1491	1578	1621	1669	1727	1778	1825	1867	1899	3.0
ONTARIO	20536	21598	22293	22832	23319	23750	24113	24531	25017	25496	25987	2.1
QUEBEC	23169	24425	24963	25524	26335	27315	28175	28895	29724	30704	31413	2.8
WSCC	11751	12939	13359	13739	14197	14612	15045	15401	15882	16369	16882	3.0
TOTAL(CANADA)	64179	68052	70108	71957	74047	76176	78134	79915	82006	84210	86156	2.7
NERC-MEXICO												
WSCC	393	441	475	515	567	600	647	678	712	747	785	6.6
TOTAL(MEXICO)	393	441	475	515	567	600	647	678	712	747	785	6.6
NERC-TOTAL	487429	512492	524343	535946	547573	559668	571436	583797	596450	609181	621091	2.2

a) Peak demands are coincident. Contractually interruptible loads are (subtracted) not included.
b) The sum of the subregional peak hour demands do not necessarily equal the coincident regional total because of subregional peak load diversity.

Figure 2

SUMMER PEAK DEMAND BANDWIDTH – NERC U.S.

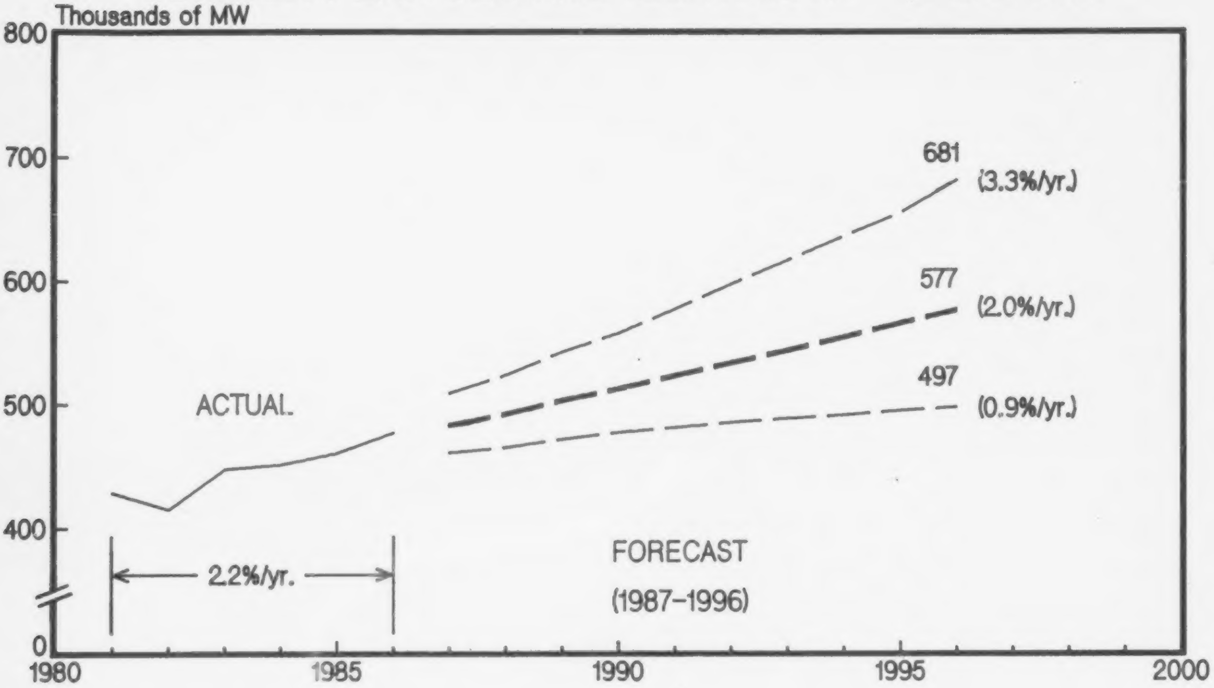
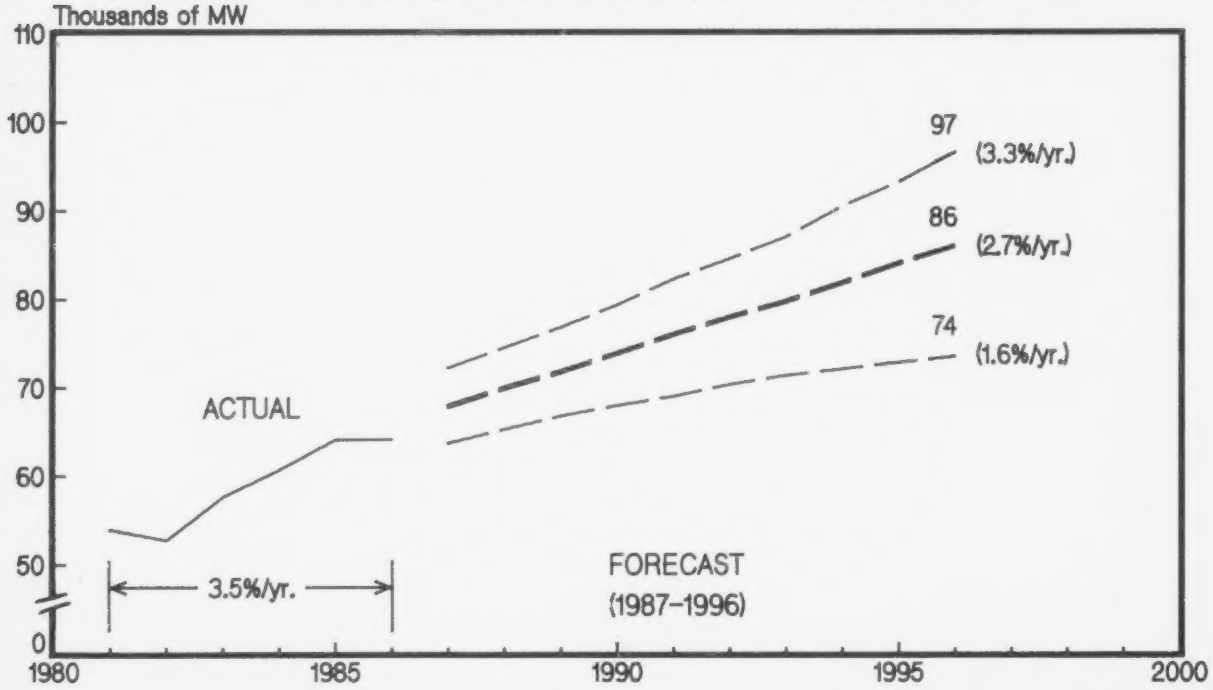


Figure 3

WINTER PEAK DEMAND BANDWIDTH – NERC CANADA



ANNUAL NET ENERGY FOR LOAD

The annual net energy for load (NEL) represents the annual electrical energy needed to serve the utilities' customers. NEL includes transmission losses and represents the electrical energy generated by the utilities' own generating sources plus electrical energy purchases from other utilities and from non-utility generation facilities, less electrical energy sales to other utilities. NEL does not include energy pumping requirements for pumped storage generating facilities.

1986 Actual Net Energy for Load

Table 4 compares 1985 and 1986 NEL for the NERC areas of the United States, Canada, Mexico, and NERC as a whole. The 1986 NEL in all of these areas exceeded their respective 1985 NEL values. In addition, 1986 NEL in all areas except NERC-MEXICO exceeded their respective 1986 NEL forecasts.

1987-1996 Projections

Details of the regional and subregional 1987-1996 NEL projections, their associated average annual growth rates, and 1986's NEL actuals are shown in Table 5. The NERC-TOTAL NEL is projected to increase by 641 million MWh over the forecast period -- corresponding to an average annual growth rate of 2.2%. As in the case for peak demands, the higher annual NEL growth rates for NERC-CANADA (2.9%) and NERC-MEXICO (6.8%) are offset by the NERC-U.S. annual NEL growth rate of 2.1%.

Annual Load Factors

The projected annual load factors for the NERC regions as well as for NERC-U.S., NERC-CANADA, NERC-MEXICO, and NERC-TOTAL are shown in Figure 4. The load factors are calculated by dividing the annual NEL of Table 5 by the product of peak demand (the greater of the summer or winter peak demands of Table 2 or 3) and 8,760 hours per year. This load factor ratio is then multiplied by 100 to express the load factor in percent. The 1987 regional load factors range from over 65% in WSCC (Canada) and WSCC (U.S.) to slightly less than 55% in NERC-MEXICO and SPP.

Forecast Uncertainty

To illustrate the uncertainty in the forecasting process, high and low bounds have been defined around the NERC-U.S. and NERC-CANADA annual NEL projections as shown in Figures 5 and 6, respectively. These figures also show recent historical average annual growth rates. The forecast bounds are defined such that there is approximately an 80% chance that future annual NEL for the U.S. and Canada will fall within the bounds as set by their respective bandwidths.

In defining the NERC-U.S. NEL bandwidth, regression analysis was used to establish a relationship between annual electrical energy and key energy-related variables. The established relationship between the variables and NEL were used with high and low estimates of the variables to develop corresponding high and low bounds for the NEL projections shown in Figure 5. The upper bound implies an annual average growth rate of 3.5%, while the lower bound indicates a 0.9% per year rate. There is a 10% chance that future annual energy for load will exceed the upper bound, and a 10% chance that annual energy needs will be less than the lower bound.

The Canada and U.S. NEL bandwidth calculation methodologies are similar except for the variables. The upper bound of the Canadian NEL bandwidth of Figure 6 implies a NEL annual average growth rate of 3.6%, and the lower bound a 1.9% per year growth rate.

It would be incorrect to apply the ranges of the energy forecast bandwidths in Figures 5 and 6 to the annual NEL forecasts of any NERC region or subregion, or to those of any individual utility. The high and low bounds apply only to the NERC-U.S. and NERC-CANADA aggregated projections of NEL.

TABLE 4
1986 NET ENERGY FOR LOAD
(Millions of MWh)

Location	1985 Actual	1986 Actual	Actual Change %	1986 Forecast	Actual vs Forecast %
NERC-U.S.	2499.2	2532.1	1.3	2525.1	0.3
NERC-CANADA	345.2	356.8	3.4	350.3	1.9
NERC-MEXICO[a]	2.6	2.8	8.5	3.0	-4.6
NERC-TOTAL	**2847.1**	**2891.7**	**1.6**	**2878.4**	**0.5**

a) Northern portion of Baja California, Mexico only.

Figure 4
ANNUAL LOAD FACTORS (%)

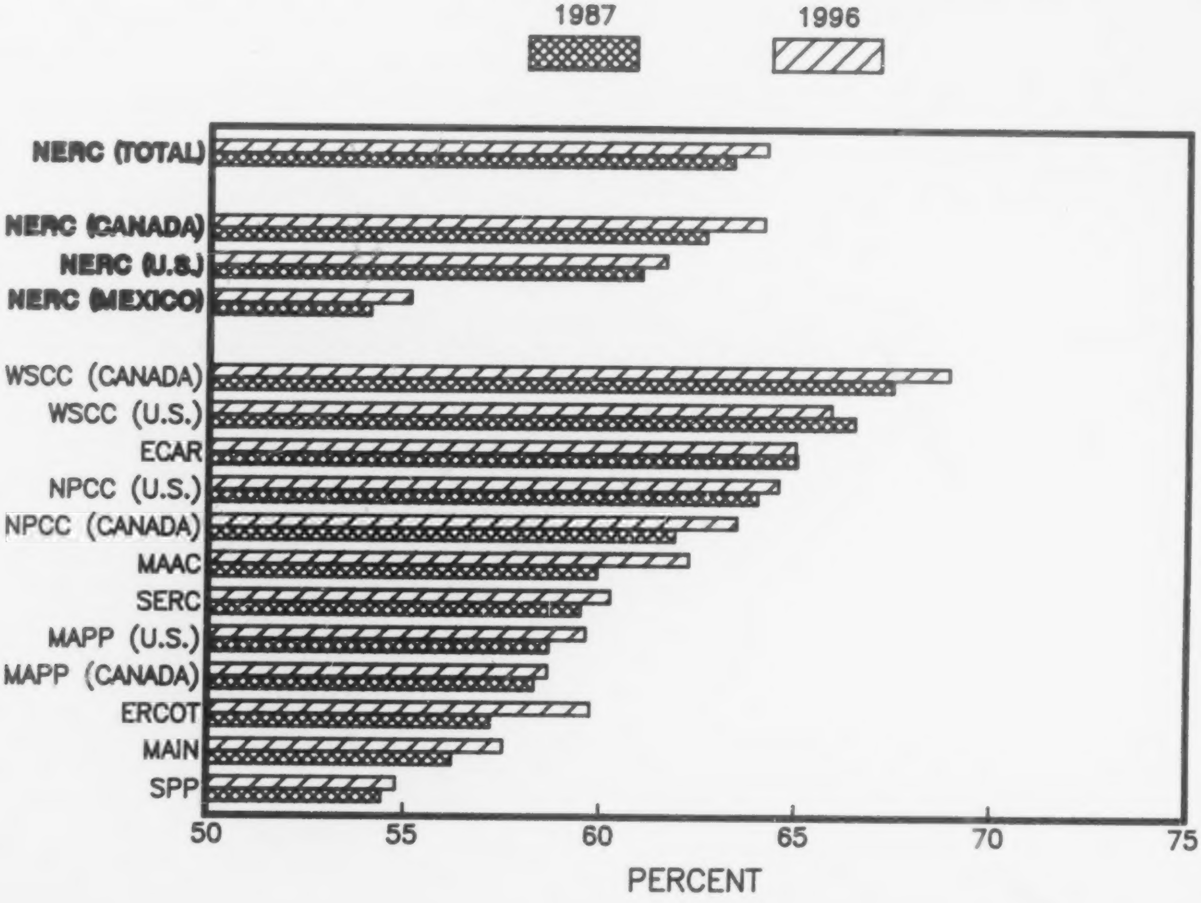


TABLE 5
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ANNUAL NET ENERGY FOR LOAD - Millions kWh
(1987-1996 FORECAST)

	ACTUAL	PROJECTED										1987-1996 AVG. ANNUAL GROWTH(%)
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
NERC-U.S.												
ECAR	390245	399000	408800	417900	424400	431100	438200	445100	452200	459800	467200	1.8
ERCOT	190796	195815	199855	205984	213555	221403	229076	237481	245931	254805	263409	3.3
MAAC	197056	199428	203361	206784	210198	213761	217252	220717	224219	227631	230949	1.6
MAIN	177190	179198	183660	186779	190227	193674	197287	200676	204140	207535	211089	1.8
CMNWLTH EDISON	70573	71523	73750	75225	76750	78300	79850	81450	83100	84750	86450	2.1
EAST MISSOURI	30996	30872	31833	32352	32975	33627	34269	34845	35377	35892	36430	1.9
S CENT ILLINOIS	33588	33284	33717	33889	34362	34805	35337	35784	36294	36770	37294	1.3
WIS-UPPER MICH	42033	43519	44360	45313	46140	46942	47831	48597	49369	50123	50915	1.8
MAPP	106824	111280	113897	114701	117065	119010	121113	123542	125733	127990	130316	1.8
NPCC	227865	231953	235336	237927	241520	245797	250662	254707	258796	263250	268234	1.6
NEW YORK	128502	130867	133286	135190	137958	140173	142381	144323	146339	148342	150342	1.6
NEW ENGLAND	99363	101086	102050	102737	103562	105624	108281	110384	112457	114908	117892	1.7
SERC	545409	551263	569121	584521	599224	614525	627764	639388	653003	667297	681115	2.4
FLORIDA	116865	119866	124004	127404	131595	135829	139789	144219	148441	152714	156625	3.0
SOUTHERN	134402	135161	138228	140710	143365	146301	148602	151110	153661	156254	158671	1.8
TVA	108378	108129	111675	118164	121108	123590	124803	124303[a]	125216	127034	129796	2.1
VACAR	185764	188107	195214	198243	203156	208805	214570	219756	225685	231295	236023	2.6
SPP	216501	220532	224771	227596	232688	237575	244021	248934	254530	260611	266172	2.1
SOUTHEAST	99490	101835	102834	102962	104818	106531	109639	111359	113636	116199	118532	1.7
WEST CENTRAL	69673	70539	72512	74079	76140	78114	80241	82291	84389	86624	88556	2.6
NORTHERN	47338	48158	49425	50555	51730	52930	54141	55284	56505	57788	59084	2.3
WSCC	480218	500574	512678	523093	533391	543463	553707	563280	575378	585590	598002	2.0
NW POOL	180466	189208	194151	198145	200910	203671	206701	208931	212418	215929	218751	1.6
ROCKY MT-AREA	34815	37729	39278	40260	41677	42725	43851	44996	46156	47315	48541	2.8
ARIZ-N.MEX	51456	54144	56787	59146	60859	62741	64456	66258	68330	69861	71722	3.2
CALIF-SO.NEV	213481	219493	222462	225542	229945	234326	238699	243095	248474	252485	258988	1.9
TOTAL(U.S.)	2532104	2589043	2651479	2705285	2762268	2820308	2879082	2933825	2993930	3054509	3116486	2.1
NERC-CANADA												
MAPP	27109	28094	29613	30706	31725	32635	33543	34525	35464	36242	36995	3.1
NPCC	256798	268982	277548	285058	292948	300915	311899	319609	327430	336359	345212	2.8
NEW BRUNSWICK	10975	11182	11525	11907	12308	12689	13065	13424	13774	14117	14456	2.9
NOVA SCOTIA	7588	7894	8046	8459	8820	9058	9385	9675	9924	10199	10332	3.0
ONTARIO	120574	125039	129040	132092	135020	137868	142349	145510	148832	152343	155724	2.5
QUEBEC[b]	117661	124867	128937	132600	136800	141300	147100	151000	154900	159700	164700	3.1
WSCC	72922	76474	79334	81743	84693	87221	90209	92556	95710	98724	101905	3.2
TOTAL(CANADA)	356829	373550	386495	397507	409366	420771	435651	446690	458604	471325	484112	2.9
NERC-MEXICO												
WSCC	2834	3231	3541	3780	4023	4285	4568	4862	5177	5511	5865	6.8
TOTAL(MEXICO)	2834	3231	3541	3780	4023	4285	4568	4862	5177	5511	5865	6.8
NERC-TOTAL	2891767	2965824	3041515	3106572	3175657	3245364	3319301	3385377	3457711	3531345	3606463	2.2

a) Contract with the government (gaseous diffusion plant) is scheduled to expire.
b) Excludes a special program of secondary industrial sales to Quebec customers ending in 1988.

Figure 5

ANNUAL NET ENERGY FOR LOAD BANDWIDTH - NERC U.S.

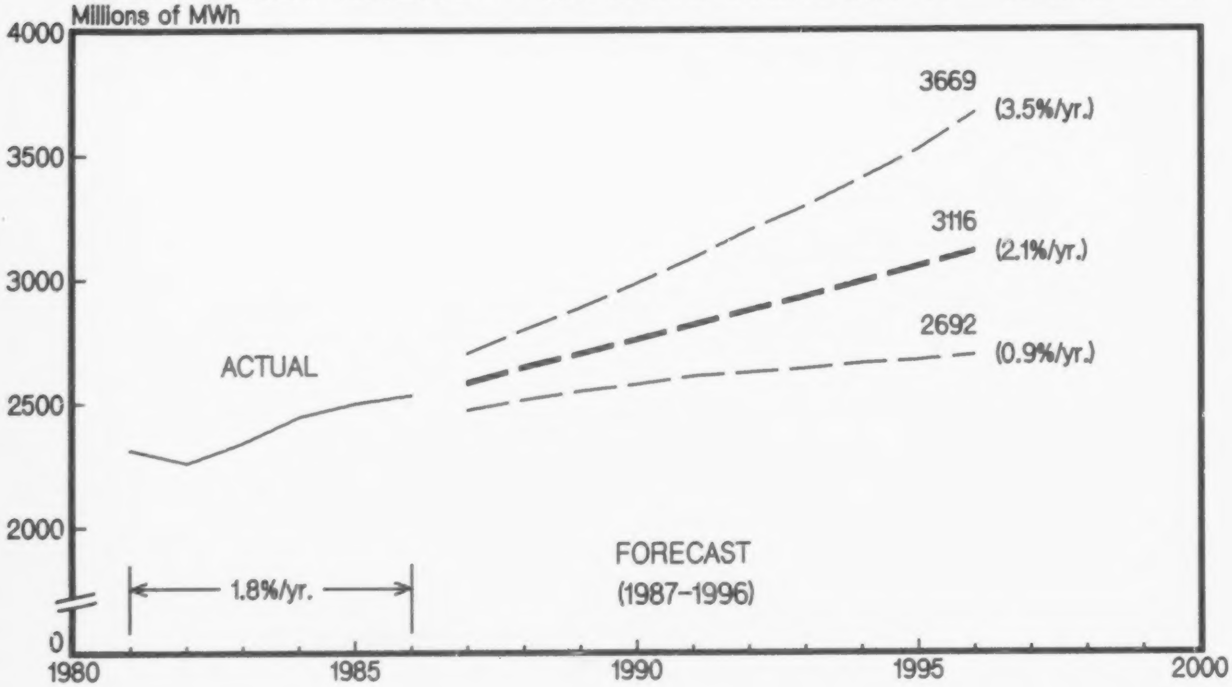
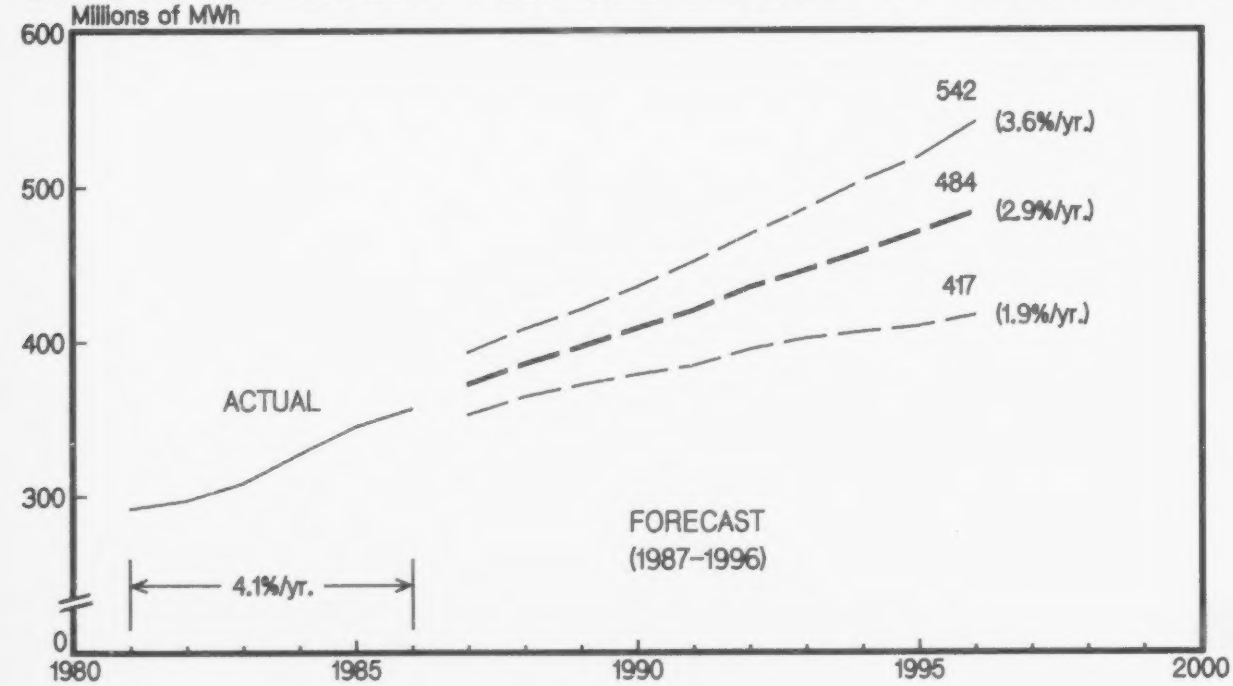


Figure 6

ANNUAL NET ENERGY FOR LOAD BANDWIDTH - NERC CANADA



PLANNED CAPACITY RESOURCES

The planned capacity resources include the total dependable generating capacity which is existing, presently under construction, or in various stages of planning, plus any scheduled capacity purchases from other utilities or non-utility generation sources, less any capacity sales. The planned capacity resources for the nine Regional Reliability Councils and their subregions are shown in Tables 6 (summer) and 7 (winter). These planned resources correspond with the projected seasonal peak demands for the regions and subregions shown in Tables 2 and 3.

To serve the projected demands, NERC systems are planning to increase their net capacity resources by about 80,000 MW (summer) and 72,900 MW (winter) over the 1987-1996 period -- corresponding to NERC-TOTAL average annual growth rates of 1.2% (summer) and 1% (winter). The comparable average annual growth rates for the regions and subregions of NERC are shown in the last column of Tables 6 and 7. Overall, the total capacity resources in winter are greater than those of the previous summer season.

The realization of these plans for capacity resources is contingent upon the completion, as scheduled, of utility and non-utility generating units which are in various stages of planning, design, licensing, or construction. A breakdown by fuel of the installed dependable generating capacity included in these planned resources is shown in Table 12 (summer), Table 15 (winter), and Appendix A. In Appendix A, the distribution of each major capacity fuel type is defined among the regions and subregions for 1986 actual and the 1987-1996 forecast period.

Estimated Capacity Margins

To adequately supply projected demand requirements, planned capacity resources must also include a sufficient capacity margin above the demand to provide for scheduled maintenance and forced outages of generating units, for equipment deratings due to various causes, for differences between actual demands and those forecast, and for other system operating requirements.

The amount by which the planned capacity resources exceed the projected peak demand is called the margin. Summer and winter margins in megawatts for the NERC areas of the United States and Canada are shown in Figure 7 for 1987 and 1996. In calculating these margins, demands which are interruptible by contract have been subtracted from the projected peak demands of Tables 2 and 3. These adjusted peak demands were then subtracted from the planned capacity resources of Tables 6 (United States) and 7 (Canada) to obtain the megawatt margins in Figure 7.

Capacity margin in percent has been calculated by dividing the margin by total planned capacity resources and multiplying by 100. Estimated capacity margins for the NERC areas of the United States and Canada are shown in Tables 8 (summer) and 9 (winter).

As the NERC area of Mexico did not provide complete detailed capacity plans for the 1987-1996 forecast period, the margins (megawatts) of Figure 7 and the capacity margins (percent) of Tables 8 and 9 have not been calculated for NERC-MEXICO. The planned capacity resources for NERC-MEXICO in Tables 6 and 7 are based only on that portion of the capacity data that was provided.

The margins (megawatts) of Figure 7 and the capacity margins (%) of Tables 8 and 9 are not in themselves sufficient indices of electric supply adequacy, security, or reliability. Capacity margins vary from region to region due to variations in regional characteristics, which, for example, include the duration of the peak demand season, the differences in the ages, sizes, and types of generating units, the number and capability of transmission interconnections, the physical characteristics of the region and the associated geographical configuration of the electric utility systems, and the operating agreements among interconnected systems. However, the margin and capacity margin projections as shown are consistent with the Regional Councils' responses to DOE's IE-411 data report requests, and they are included here for convenience.

Figure 7

ESTIMATED MARGINS AT THE TIME OF REGIONAL PEAK DEMAND

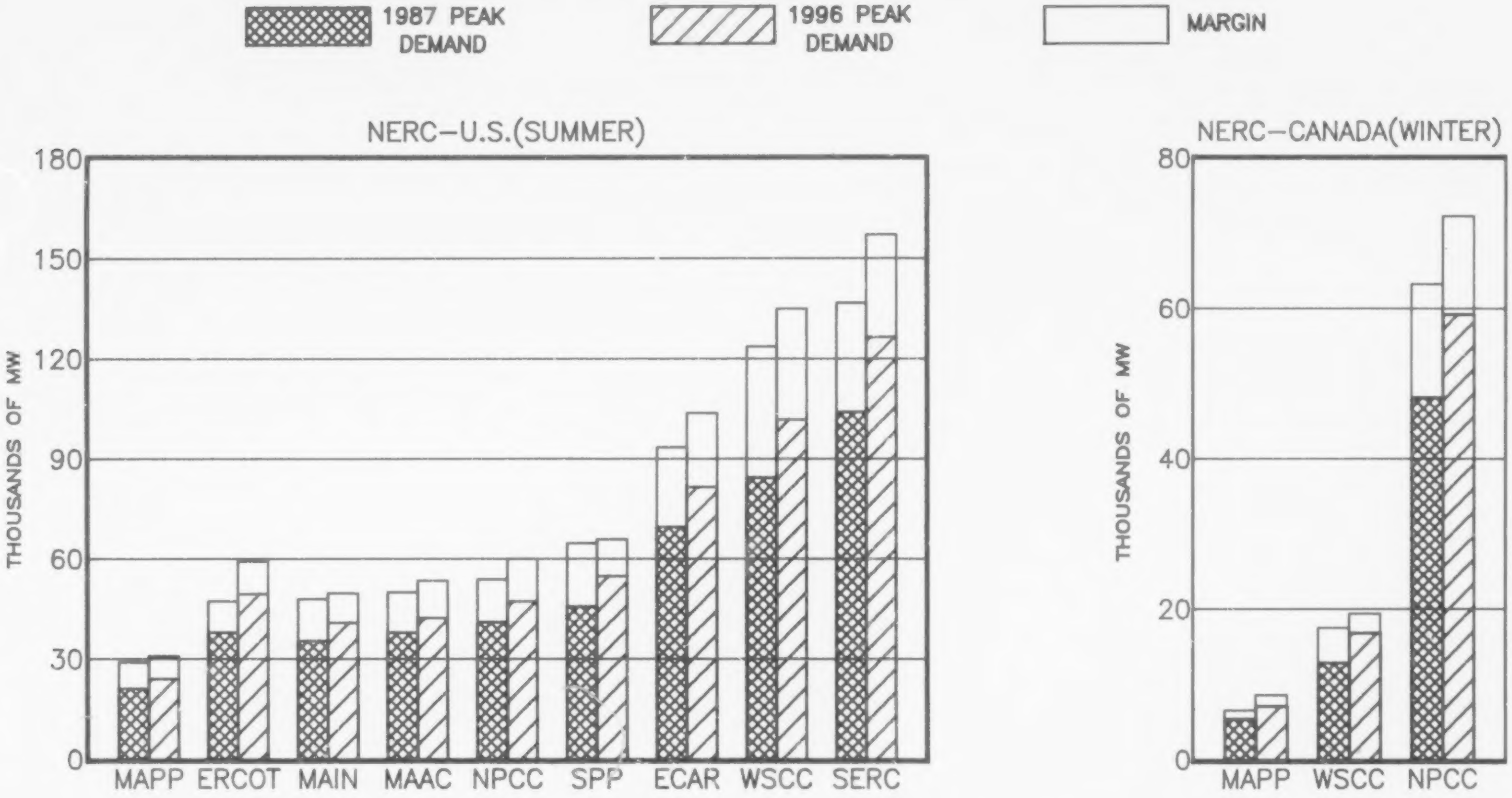


TABLE 6
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

1987-1996 PLANNED CAPACITY RESOURCES - SUMMER - MW
(GENERATING CAPACITY+SCHEDULED CAPACITY PURCHASES-CAPACITY SALES)

	PROJECTED										
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1987-1996 AVG. ANNUAL GROWTH(%)
NERC-U.S.											
ECAR	93487	95502	97087	98092	101249	101534	102812	103098	103356	103802	1.2
ERCOT	47398	50317	52419	53832	54812	55885	56785	58220	58381	59390	2.5
MAAC	50052	50461	51134	51913	52327	52890	52840	52947	53107	53561	.8
MAIN	48053	47916	49138	49126	49308	49438	49874	49891	49959	49832	.4
CMNWLTH EDISON	21194	20882	21972	21972	21972	21972	21972	21972	21972	21872	.4
EAST MISSOURI	7954	7971	7946	7956	8031	8031	8331	8336	8336	8340	.5
S CENT ILLINOIS	9361	9517	9517	9517	9517	9517	9533	9533	9533	9476	.1
WIS-UPPER MICH	9544	9546	9703	9681	9788	9918	10038	10050	10118	10144	.7
MAPP	29119	29981	29850	29944	30102	30146	30577	30566	30565	30990	.7
NPCC	53956	57620	57698	58086	59585	59271	58893	58940	59217	60104	1.2
NEW YORK	31282	33327	33403	33665	33751	33848	33880	33948	34363	35554	1.4
NEW ENGLAND	22674	24293	24295	24421	25834	25423	25013	24992	24854	24550	.9
SERC	136809	137802	142896	144960	146660	149311	150249	153019	155414	157313	1.6
FLORIDA	30666	31209	31961	32310	32557	32852	31929	32295	33139	33725	1.1
SOUTHERN	31478	31482	34093	34090	34710	35480	36800	37431	38406	38043	2.1
TVA	28926	29126	30296	31466	31466	31466	31466	32678	32678	33890	1.8
VACAR	45739	45985	46546	47094	47927	49513	50054	50615	51191	51655	1.4
SPP	64789	64695	64723	64665	64822	64716	65165	65415	65252	65929	.2
SOUTHEAST	28520	28352	28267	28404	28633	28426	28580	28139	27882	28277	-.1
WEST CENTRAL	21022	21040	20979	20748	21126	21127	21278	21220	21216	21370	.2
NORTHERN	15247	15303	15477	15513	15063	15163	15307	16056	16154	16282	.7
WSCC[a]	123755	127551	129284	130868	131089	131127	131815	133071	134376	135035	1.0
NW POOL	43791	45395	45547	45733	45442	46107	46057	46126	46296	46488	.7
ROCKY MT-AREA	9357	9664	9704	9929	9731	9723	9694	10160	10503	10491	1.3
ARIZ-N.MEX	14521	15627	16715	17214	17679	17718	17756	17856	18072	18180	2.5
CALIF-SO.NEV	56036	58378	58986	60357	61135	61597	62358	64215	63950	64738	1.6
TOTAL(U.S.)	647418	661845	674229	681486	689954	694318	699010	705167	709627	715956	1.1
NERC-CANADA											
MAPP	6626	6734	6842	6842	7781	8141	8261	8353	8629	8629	3.0
NPCC	61263	61659	64135	63282	64354	66374	67021	68100	68555	68516	1.3
NEW BRUNSWICK	2764	2755	2755	2755	2755	3165	3141	3476	3476	3476	2.6
NOVA SCOTIA	1798	1951	1951	1951	1951	2101	2101	2251	2551	2551	4.0
ONTARIO	29838	30023	31875	31925	32848	33759	33789	34221	34376	34406	1.6
QUEBEC	26863	26930	27554	26651	26800	27349	27990	28152	28152	28083	.5
WSCC	17691	17691	17791	18131	18389	18772	18772	18772	19132	19492	1.1
TOTAL(CANADA)	85580	86084	88768	88255	90524	93287	94054	95225	96316	96637	1.4
NERC-MEXICO[b]											
WSCC	808	808	808	953	953	1098	1148	1198	1198	1198	4.5
TOTAL(MEXICO)	808	808	808	953	953	1098	1148	1198	1198	1198	4.5
NERC-TOTAL	733806	748737	763805	770694	781431	788703	794212	801590	807141	813791	1.2

a) Since the subregional peak demands may occur in different months than the coincident total WSCC (U.S.) peak demand, the sum of the subregional resources based on those peak demands may not always equal the total WSCC (U.S.) resources. Also, the sum of the subregional resources does not equal the total WSCC (U.S.) resources because in some cases firm power transfers have been reported for which either the buying or the selling system has not yet been identified.

b) Detailed capacity plans for the forecast period were not available. Data shown is based only on that portion of the capacity data which was reported.

TABLE 7
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

1987-1996 PLANNED CAPACITY RESOURCES - WINTER - MW
(GENERATING CAPACITY+SCHEDULED CAPACITY PURCHASES-CAPACITY SALES)

		PROJECTED									1987/88-1996/97 AVG. ANNUAL GROWTH(%)
	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	
NERC-U.S.											
ECAR	96940	98568	98741	100757	102915	103996	104248	104619	105137	105437	.9
ERCOT	49567	50220	53761	54705	55316	56664	57401	58460	59312	60994	2.3
MAAC	52757	53035	53672	54557	54527	55068	55259	55351	55511	56050	.7
MAIN	49023	49878	50002	50040	50219	50481	50781	50858	50709	5C553	.3
CMNWLTH EDISON	21713	22521	22521	22521	22521	22521	22521	22521	22421	22234	.3
EAST MISSOURI	8005	8021	7996	8005	8080	8080	8380	8385	8385	8390	.5
S CENT ILLINOIS	9637	9693	9693	9693	9693	9705	9705	9705	9648	9648	.0
WIS-UPPER MICH	9668	9643	9792	9821	9925	10175	10175	10247	10255	10281	.7
MAPP	29845	29924	29832	30115	30205	30416	31219	31206	31215	31625	.6
NPCC	58156	58440	58580	60458	60089	59955	59764	59674	59746	60942	.5
NEW YORK	33483	33628	33714	33966	34052	34149	34181	34249	34664	35860	.8
NEW ENGLAND	24673	24812	24866	26492	26037	25806	25583	25425	25082	25082	.2
SERC	139547	141955	145051	147293	148958	151166	153812	155532	159029	160036	1.5
FLORIDA	32277	32855	33089	33410	33690	33545	33078	33508	34449	35145	1.0
SOUTHERN	31347	32504	33970	34040	34715	35485	36805	37436	38263	38022	2.2
TVA	29373	29373	30543	31713	31713	31713	32925	32925	34137	34137	1.7
VACAR	46550	47223	47449	48130	48840	50423	51004	51663	52180	52732	1.4
SPP	65141	65082	65136	64561	64990	65132	64998	65166	65814	66408	.2
SOUTHEAST	28526	28369	28267	28316	28439	28580	28174	27807	28297	28277	-.1
WEST CENTRAL	20977	21048	21014	20777	21193	21093	21220	21005	21065	21551	.3
NORTHERN	15638	15665	15855	15468	15358	15459	15604	16354	16452	16580	.7
WSCC[a]	126724	128406	130936	131067	131444	131968	132587	134026	135154	135199	.7
NW POOL	46404	46627	46737	46883	46992	46810	46754	46982	47116	47258	.2
ROCKY MT-AREA	9845	9873	10092	10121	9914	9915	9916	10394	10737	10744	1.0
ARIZ-N.MEX	15402	15271	16618	16897	17361	17386	17437	17505	17689	17597	1.5
CALIF-SO.NEV	54613	56697	57590	57831	58174	58458	59361	60109	60712	61321	1.3
TOTAL(U.S.)	667700	675508	685711	693553	698663	704846	710069	714892	721627	727244	1.0
NERC-CANADA											
MAPP	6606	6724	6842	7082	7901	8261	8261	8353	8633	8633	3.0
NPCC	63320	64434	66528	66663	68045	69918	71503	71814	72340	72352	1.5
NEW BRUNSWICK	2764	2755	2755	2755	3165	3165	3476	3476	3476	3476	2.6
NOVA SCOTIA	1951	1951	1951	1951	2101	2101	2251	2251	2551	2551	3.0
ONTARIO	30358	31340	32311	32353	33264	34175	34400	34711	34792	34822	1.5
QUEBEC	28247	28388	29511	29604	29515	30477	31376	31376	31521	31503	1.2
WSCC	17545	17545	17875	18130	18513	18513	18513	18873	19233	19433	1.1
TOTAL(CANADA)	87471	88703	91245	91875	94459	96692	98277	99040	100206	100418	1.5
NERC-MEXICO[b]											
WSCC	808	808	953	953	1098	1098	1148	1198	1198	1198	4.5
TOTAL(MEXICO)	808	808	953	953	1098	1098	1148	1198	1198	1198	4.5
NERC-TOTAL	755979	765019	777909	786381	794220	802636	809494	815130	823031	828860	1.0

a) Since the subregional peak demands may occur in different months than the coincident total WSCC (U.S.) peak demand, the sum of the subregional resources based on those peak demands may not always equal the total WSCC (U.S.) resources. Also, the sum of the subregional resources does not equal the total WSCC (U.S.) resources because in some cases firm power transfers have been reported for which either the buying or the selling system has not yet been identified.

b) Detailed capacity plans for the forecast period were not available. Data shown is based only on that portion of the capacity data which was reported.

TABLE 8
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ESTIMATED CAPACITY MARGINS AT THE TIME OF SUMMER PEAK DEMAND - %(CAPACITY RESOURCES)
(1987-1996 FORECAST)

					PROJECTED					
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.										
ECAR	25.6	25.5	25.0	24.7	25.9	25.0	24.7	23.6	22.4	21.4
ERCOT	19.8	22.9	23.5	23.0	22.1	21.2	19.9	19.6	17.3	16.6
MAAC	24.1	23.6	23.6	23.9	23.7	23.6	22.7	21.9	21.2	20.9
MAIN	26.2	24.8	25.6	24.4	23.4	22.3	21.7	20.5	19.4	18.0
CMNWLTH EDISON	27.6	25.1	27.4	26.0	24.4	22.9	21.3	19.7	18.1	16.1
EAST MISSOURI	19.1	18.2	17.1	16.0	15.6	14.3	16.1	15.2	14.2	13.1
S CENT ILLINOIS	32.7	32.9	32.6	32.0	31.5	30.8	30.3	29.7	29.1	28.0
WIS-UPPER MICH	22.7	21.8	21.4	20.0	19.7	19.5	19.3	18.2	17.6	16.6
MAPP	27.2	28.3	27.3	26.4	25.8	24.8	24.5	23.2	22.1	22.0
NPCC	23.7	27.5	26.8	26.3	27.0	25.2	23.6	22.5	21.6	21.3
NEW YORK	25.9	29.1	28.0	27.1	26.3	25.4	24.6	23.8	23.9	25.6
NEW ENGLAND	20.6	25.4	25.1	25.2	28.0	25.0	22.3	20.7	18.4	15.2
SERC	23.9	22.7	23.4	22.8	21.7	21.7	20.7	20.6	20.2	19.5
FLORIDA	25.5	25.0	25.0	24.1	23.0	22.0	17.9	16.9	16.6	16.4
SOUTHERN	18.0	16.0	20.5	19.1	18.0	18.6	19.8	19.6	20.0	17.6
TVA	30.5	29.6	28.9	29.9	28.5	27.3	27.2	29.2	28.1	29.3
VACAR	22.7	21.4	20.8	19.8	19.2	20.0	19.1	18.3	17.6	16.7
SPP	29.3	28.2	27.1	25.5	24.1	22.1	21.0	19.5	17.5	16.8
SOUTHEAST	30.5	29.4	28.6	27.5	26.7	24.1	22.9	19.9	17.2	16.8
WEST CENTRAL	29.6	28.6	26.8	24.4	24.1	22.4	21.2	19.1	17.1	16.1
NORTHERN	26.7	25.5	24.7	23.4	19.1	18.1	17.1	19.4	18.3	17.5
WSCC	31.8	32.6	31.7	31.2	29.9	28.4	27.3	26.5	25.6	24.6
NW POOL	41.3	42.3	41.2	40.7	39.6	39.6	38.6	37.5	36.7	36.5
ROCKY MT-AREA	36.4	36.5	35.2	35.3	32.3	30.5	28.6	30.2	30.8	29.1
ARIZ-N.MEX	27.2	30.3	32.6	32.7	32.4	30.4	28.2	26.3	25.3	23.6
CALIF-SO.NEV	23.7	25.9	24.5	24.9	24.2	23.1	22.6	23.2	21.2	20.6
TOTAL(U.S.)	26.2	26.5	26.2	25.6	25.1	24.1	23.1	22.3	21.3	20.5
NERC-CANADA										
MAPP	40.2	36.0	34.8	32.6	39.1	40.2	39.3	38.3	39.0	37.7
NPCC	45.1	44.3	44.9	42.6	42.0	42.4	42.3	42.3	41.2	40.1
NEW BRUNSWICK	48.3	47.1	45.5	43.9	42.4	48.6	46.9	50.9	49.8	48.7
NOVA SCOTIA	43.1	46.6	44.0	41.4	39.8	42.0	40.2	42.8	36.3	47.4
ONTARIO	44.1	43.0	45.0	43.8	44.[illegible]	44.8	44.0	43.8	42.9	41.7
QUEBEC	46.0	45.2	44.7	41.2	39.4	38.7	39.8	39.6	38.5	36.4
WSCC	43.1	41.1	39.7	38.8	38.0	37.4	36.0	33.9	33.2	32.1
TOTAL(CANADA)	44.3	43.0	43.1	41.1	40.9	41.2	40.8	40.3	39.4	38.3
NERC-MEXICO[a]										
WSCC	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
TOTAL(MEXICO)	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
NERC-TOTAL	28.3	28.3	28.1	27.4	26.9	26.1	25.2	24.4	23.4	22.6

a) Capacity margins not calculated. See footnote b on Table 6.

TABLE 9
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ESTIMATED CAPACITY MARGINS AT THE TIME OF WINTER PEAK DEMAND - %(CAPACITY RESOURCES)
(1987-1996 FORECAST)

			PROJECTED							
	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
NERC-U.S.										
ECAR	29.6	29.3	28.2	28.5	28.9	28.4	27.3	26.2	25.2	24.2
ERCOT	38.4	36.8	38.2	36.5	34.7	33.6	31.7	30.2	28.5	27.8
MAAC	35.5	34.4	34.0	33.7	32.5	31.9	30.8	29.7	28.7	28.2
MAIN	41.7	41.5	40.5	39.4	38.4	37.5	36.7	35.7	34.3	32.9
CMNWLTH EDISON	47.2	48.0	47.0	45.9	44.8	43.7	42.5	41.4	39.9	38.2
EAST MISSOURI	36.4	34.6	32.5	30.7	29.0	27.0	27.6	25.9	24.2	22.3
S CENT ILLINOIS	44.9	44.3	43.6	42.9	42.0	41.2	40.4	39.5	38.3	37.3
WIS-UPPER MICH	30.4	28.8	29.1	28.2	27.8	28.7	27.9	27.5	26.7	26.0
MAPP	37.0	36.3	35.2	34.9	34.0	33.3	33.9	32.8	31.7	31.5
NPCC	31.2	30.9	[illegible]	31.9	30.5	29.3	28.2	27.2	26.2	26.5
NEW YORK	35.9	35.0	33.9	33.3	32.4	31.7	30.8	30.1	30.0	31.4
NEW ENGLAND	24.9	25.3	25.5	30.1	28.1	26.3	24.7	23.3	21.0	19.4
SERC	26.3	25.5	25.5	25.0	24.3	24.0	23.6	22.7	23.0	21.8
FLORIDA	21.0	20.3	18.5	17.7	16.8	14.5	10.3	8.4	9.3	9.7
SOUTHERN	30.1	31.5	33.2	32.0	32.0	32.2	33.4	33.3	33.6	31.5
TVA	31.6	28.6	30.2	31.4	30.3	30.2	32.1	31.2	32.0	30.4
VACAR	24.1	23.1	21.8	21.0	20.0	20.7	19.7	19.0	18.3	17.3
SPP	47.6	47.1	46.0	44.2	43.2	42.1	40.5	39.3	38.9	38.1
SOUTHEAST	47.7	47.7	46.6	45.5	44.5	43.8	41.6	39.6	40.3	39.1
WEST CENTRAL	48.2	47.3	45.7	43.7	43.3	41.5	40.2	37.9	36.3	36.2
NORTHERN	[illegible]	45.9	45.2	42.4	40.6	39.7	39.0	40.6	39.7	38.9
WSCC	36.3	35.7	35.3	34.1	32.9	31.9	30.8	30.2	29.3	28.5
NW POOL	26.8	25.7	23.9	23.0	22.0	20.6	19.2	18.2	17.4	19.5
ROCKY MT-AREA	40.3	37.2	37.2	35.7	32.8	31.1	29.3	30.5	31.0	31.8
ARIZ-N.MEX	48.6	46.5	49.4	48.6	48.4	46.9	45.4	44.1	43.2	41.9
CALIF-SO.NEV	38.2	39.5	38.8	37.8	36.7	35.8	35.3	34.7	34.2	33.1
TOTAL(U.S.)	34.4	33.7	33.3	32.7	31.8	31.0	30.0	29.0	28.3	27.5
NERC-CANADA										
MAPP	18.8	15.8	14.3	14.3	20.9	22.2	20.2	19.0	19.8	18.2
NPCC	24.0	23.4	24.1	22.2	21.7	22.4	22.8	21.5	20.0	18.2
NEW BRUNSWICK	23.6	21.1	18.2	17.1	23.9	21.6	26.6	24.7	22.8	21.0
NOVA SCOTIA	29.3	27.3	22.9	20.9	24.3	21.7	24.7	22.8	30.3	29.0
ONTARIO	31.2	31.2	31.7	30.3	30.9	31.7	30.9	30.1	28.9	27.5
QUEBEC	16.0	14.7	16.4	13.9	11.0	12.1	13.3	11.6	8.9	6.6
WSCC	27.1	24.6	23.8	22.4	21.8	19.4	17.5	16.5	15.6	13.8
TOTAL(CANADA)	24.2	23.1	23.3	21.6	21.7	21.8	21.6	20.4	19.1	17.3
NERC-MEXICO [a]										
WSCC	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
TOTAL(MEXICO)	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
NERC-TOTAL	33.3	32.5	32.1	31.4	30.6	29.9	29.0	28.0	27.2	26.3

a) Capacity margins not calculated. See footnote b on Table 7.

INSTALLED GENERATING CAPACITY

The installed generating capacity includes those generating units which are existing, presently under construction, in various stages of planning, plus unit upgradings, less deratings, less unit removals. It includes utility-owned generating units and non-utility generators (NUGs) which utilities have reported as generating capacity.

The data included on NUGs is limited to only those NUGs which sell or are projected to sell electrical energy or capacity, or both, to electric utilities and which are reported as generating capacity or generating capacity additions by electric utilities. NUGs treated by utilities as a reduction to peak demand or as capacity imports are not included in installed generating capacity.

Figure 8 shows the 1987 and 1996 projections of total installed generating capacity with a breakdown by fuel for NERC-U.S., NERC-CANADA, and NERC-MEXICO. Similarly, Table 10 shows the generating capacity percentage mix by fuel for all NERC regions for the first and tenth years of the forecast.

The 1986 actual and 1987-1996 projections for installed generating capacity for the nine Regional Reliability Councils and their subregions are shown in Tables 11 (summer) and 14 (winter). These generating capacities correspond with the time of the projected seasonal peak demands for the regions and subregions shown in Tables 2 and 3. A further breakdown of the regional and subregional summer generating capacity totals of Table 11, by fuel, is included in Appendix A.

Tables 12 and 13 show the summer generating capacities by fuel in megawatts and in percent of total megawatts, respectively, for NERC-U.S., NERC-CANADA, NERC-MEXICO, and NERC-TOTAL. Tables 15 and 16 show the winter generating capacities for these areas on the same basis.

As NERC-MEXICO did not provide complete detailed capacity plans for the 1987-1996 forecast period, the installed generating capacity included in this section for NERC-MEXICO is based only on the capacity information which was provided.

In summary, these tables show that the NERC-TOTAL installed generating capacity will increase from 729,000 to 804,000 MW (summer) and from 750,000 to 818,000 MW winter) over the 1987-1996 forecast period. (For tabulations of the total planned resources, which include scheduled capacity purchases and sales in addition to installed generating capacity, refer to Tables 6 and 7.)

Figure 8
INSTALLED GENERATING CAPACITY BY FUEL

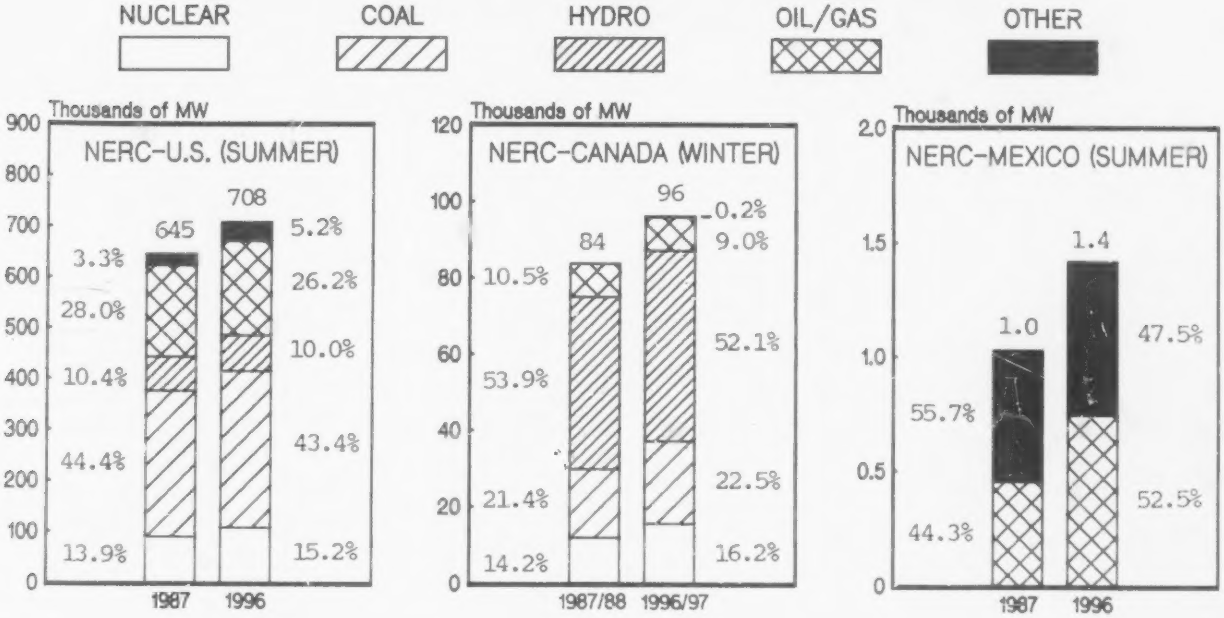


TABLE 10
INSTALLED GENERATING CAPACITY[a] BY FUEL (% TOTAL)

	1987					1996				
	Nuclear	Coal	Hydro[b]	Oil/Gas	Other	Nuclear	Coal	Hydro[b]	Oil/Gas	Other
ECAR	7.1	82.5	0.7	6.0	3.7	7.4	81.2	0.7	6.1	4.6
ERCOT	0.0	29.3	0.6	70.1	0.0	8.4	33.5	0.4	57.0	0.7
MAAC	23.7	35.3	2.4	35.9	2.7	23.8	33.4	2.2	33.0	7.6
MAIN	28.4	56.5	1.2	13.3	0.6	29.7	55.6	1.2	12.7	0.8
MAPP-U.S.	13.0	64.5	10.6	11.8	0.1	12.5	67.0	9.0	11.4	0.1
NPCC-U.S.	17.5	13.5	10.2	52.6	6.2	21.4	13.3	10.1	46.3	8.9
SERC	20.6	48.5	8.2	19.2	3.5	21.9	45.1	7.3	20.6	5.1
SPP	8.9	39.9	3.8	46.7	0.7	8.9	41.2	3.8	44.8	1.3
WSCC-U.S.	8.6	24.4	34.6	26.2	6.2	8.7	24.2	33.7	23.5	9.9
NERC-U.S.	**13.9**	**44.4**	**10.4**	**28.0**	**3.3**	**15.2**	**43.4**	**10.0**	**26.2**	**5.2**
MAPP-CAN.	0.0	29.0	66.2	4.8	0.0	0.0	28.0	65.6	6.4	0.0
NPCC-CAN.	20.0	19.4	50.3	10.3	0.0	23.0	18.8	49.3	8.5	0.4
WSCC-CAN.	0.0	25.6	61.3	13.1	0.0	0.0	32.6	55.4	12.0	0.0
NERC-CAN.	**14.2**	**21.4**	**53.9**	**10.5**	**0.0**	**16.2**	**22.5**	**52.1**	**9.0**	**0.2**
NERC-MEX.[c]	**0.0**	**0.0**	**0.0**	**44.3**	**55.7**[d]	**0.0**	**0.0**	**0.0**	**52.5**	**47.5**[d]
NERC-TOTAL	**13.9**	**41.7**	**15.4**	**26.0**	**3.0**	**15.3**	**49.0**	**15.0**	**24.2**	**4.7**

a) Summer capabilities, except winter capabilities for Canada.

b) Conventional hydro. Adverse hydro except for a few systems with median or average hydro.

c) Detailed capacity plans were not available. Data shown is based only on that portion of the capacity data which was reported. Northern portion of Baja California, Mexico only.

d) All geothermal capacity.

TABLE 11
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY[a] - SUMMER - MW
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	95201	97566	98284	99657	100662	103059	103144	103972	104158	104369	104815
ERCOT[b]	43386	44405	47246	49778	51148	51778	52536	53289	54699	55144	55931
MAAC	47626	48731	48792	49212	49987	51158	51917	52314	52418	52578	53032
MAIN	45351	48362	48516	49763	49736	49843	49973	50093	50105	50173	50042
CMNWLTH EDISON	18672	20882	20882	21972	21972	21972	21972	21972	21972	21972	21872
EAST MISSOURI	8189	8188	8229	8229	8229	8229	8229	8229	8229	8229	8229
S CENT ILLINOIS	8899	9743	9854	9854	9854	9854	9854	9854	9854	9854	9797
WIS-UPPER MICH	9591	9549	9551	9708	9681	9788	9918	10038	10050	10118	10144
MAPP	28438	28772	29572	29444	29494	29460	29504	29735	29735	29731	30146
NPCC	51879	51996	55428	55383	55592	55643	55737	55363	55412	55689	56723
NEW YORK	30449	30733	32776	32850	33110	33193	33288	33318	33383	33798	34989
NEW ENGLAND	21430	21263	22652	22533	22482	22450	22449	22045	22029	21891	21734
SERC	132168	136998	137725	142790	144771	146467	148353	149018	151786	154159	155836
FLORIDA[c]	27446	27996	28522	29245	29511	29754	29984	29988	30952	32374	32738
SOUTHERN	32672	34576	34531	37142	37139	37759	37829	37949	37980	38355	37992
TVA	29601	29601	29601	30771	31941	31941	31941	31941	33153	33153	34365
VACAR	42449	44825	45071	45632	46180	47013	48599	49140	49701	50277	50741
SPP	65102	64643	64823	64840	65059	65360	65293	65700	66026	65837	66777
SOUTHEAST	27954	27633	27733	27750	27969	27858	27664	27818	27412	27080	27495
WEST CENTRAL	22341	22263	22363	22363	22363	22775	22775	22886	22846	22893	23148
NORTHERN	14807	14747	14727	14727	14727	14727	14854	14996	15768	15864	16134
WSCC[d]	124140	123087	126908	128761	130145	130451	130489	131177	132458	133688	134372
NW POOL	48454	46002	46673	46760	46762	46269	47146	47189	47254	47290	47385
ROCKY MT-AREA	9158	9944	10244	10283	10512	10323	10324	10323	10800	11142	11142
ARIZ-N.MEX	13520	14922	15974	16649	16926	17276	17302	17314	17427	17568	17701
CALIF-SO.NEV	52131	52101	53906	54958	55834	55961	55940	56571	57197	57910	58366
TOTAL(U.S.)	633291	644560	657294	669628	675594	683219	686946	690661	696797	701368	707674
NERC-CANADA											
MAPP	6616	6626	6734	6842	6842	7781	8141	8261	8353	8629	8629
NPCC	57215	58455	58801	61200	61779	62745	64447	65094	66011	66466	66496
NEW BRUNSWICK	3194	3194	3185	3185	3185	3185	3185	3161	3496	3496	3496
NOVA SCOTIA[e]	1798	1798	1951	1951	1951	1951	2101	2101	2251	2551	2551
ONTARIO[f]	29057	29910	30043	31895	31925	32848	33759	33789	34221	34376	34406
QUEBEC	23166	23553	23622	24169	24718	24761	25402	26043	26043	26043	26043
WSCC	17904	17941	17941	17941	18281	18539	18922	18922	18922	19282	19642
TOTAL(CANADA)	81735	83022	83476	85983	86902	89065	91510	92277	93286	94377	94767
NERC-MEXICO[g]											
WSCC	828	1028	1028	1028	1173	1173	1318	1368	1418	1418	1418
TOTAL(MEXICO)	828	1028	1028	1028	1173	1173	1318	1368	1418	1418	1418
NERC-TOTAL	715854	728610	741798	756639	764669	773457	779774	784306	791501	797163	803859

a) At the time of actual and projected summer peak demand.
b) Excludes cogeneration and other non-ERCOT owned sources which are treated as capacity imports into ERCOT.
c) Excludes capacity of qualifying facilities (QFs) which are treated as capacity imports into the Florida subregion.
d) Because of subregional peak demand diversities, the sum of the individual subregional capacities at the time of the respective subregional peak demands may not equal the total WSCC (U.S.) capacity. e) Excludes 17 MW of tidal power.
f) Includes 3779 MW (summer) of mothballed capacity, some of which may be retired before 1996. Decisions as to when the retirements will occur have not been made. g) See footnote c of Table 10.

TABLE 12
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY BY FUEL - SUMMER - MW
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
COAL	281339	285940	288361	292529	292753	297066	299097	300984	303918	305630	307425
NUCLEAR	79480	89655	96144	101931	104195	105020	105066	105066	106278	106278	107490
HYDRO[a]	70436[b]	67236	68163	68539	68891	69043	69299	69548	69971	70350	70426
PUMPED STORAGE	16032	15926	16025	16075	16303	16920	17428	17539	17538	17535	18534
GEOTHERMAL	1903	1964	2198	2359	2612	2627	2642	2697	2712	2902	2967
OIL[c]	58031	57436	57433	57396	57636	57323	57350	56716	57307	57440	57729
GAS[c]	44030	43330	43846	43825	43848	43875	43909	43889	43499	43197	43444
DUAL(OIL/GAS)FUEL[c,d]	79829	79547	79218	79296	80165	79789	79821	80938	81548	83536	84276
OTHER	2211	3526	5906	7678	10191	11556	12334	13284	14026	14500	15383
TOTAL(U.S.)	633291	644560	657294	669628	676594	683219	686946	690661	696797	701368	707674
NERC-CANADA											
COAL	17792	17793	17946	18281	18667	19264	19800	19776	20261	21197	21557
NUCLEAR	11031	11848	11940	13792	13792	14673	15554	15554	15554	15554	15554
HYDRO[a]	44371	44809	44879	45426	45975	46738	47739	48500	48994	49119	49119
PUMPED STORAGE	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	0	0	0	0	0	0	0	0	0	0	0
OIL[c]	5546	5536	5567	5232	5232	5232	5229	5229	5229	5229	5229
GAS[c]	2095	2136	2244	2352	2306	2198	2198	2198	2198	2198	2198
DUAL(OIL/GAS)FUEL[c,d]	900	900	900	900	900	900	900	900	900	900	900
OTHER	0	0	0	0	30	60	90	120	150	180	210
TOTAL(CANADA)	81735	83022	83476	85983	86902	89065	91510	92277	93286	94377	94767
NERC-MEXICO[e]											
COAL	0	0	0	0	0	0	0	0	0	0	0
NUCLEAR	0	0	0	0	0	0	0	0	0	0	0
HYDRO[a]	0	0	0	0	0	0	0	0	0	0	0
PUMPED STORAGE	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	373	573	573	573	573	573	573	623	673	673	673
OIL[c]	455	455	455	455	600	600	745	745	745	745	745
GAS[c]	0	0	0	0	0	0	0	0	0	0	0
DUAL(OIL/GAS)FUEL[c,d]	0	0	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	828	1028	1028	1028	1173	1173	1318	1368	1418	1418	1418
NERC-TOTAL											
COAL	299131	303733	306307	310810	311420	316330	318897	320760	324179	326827	328982
NUCLEAR	90511	101503	108084	115723	117987	119693	120620	120620	121832	121832	123044
HYDRO[a]	114807[b]	112045	113042	113965	114866	115781	117038	118048	118965	119469	119545
PUMPED STORAGE	16032	15926	16025	16075	16303	16920	17428	17539	17538	17535	18534
GEOTHERMAL	2276	2537	2771	2932	3185	3200	3215	3320	3385	3575	3640
OIL[c]	64032	63427	63455	63083	63468	63155	63324	62690	63281	63414	63703
GAS[c]	46125	45466	46090	46177	46154	46073	46107	46087	45697	45395	45642
DUAL(OIL/GAS)FUEL[c,d]	80729	80447	80118	80196	81065	80689	80721	81838	82448	84436	85176
OTHER	2211	3526	5906	7678	10221	11616	12424	13404	14176	14680	15593
NERC-TOTAL	715854	728610	741798	756639	764669	773457	779774	784306	791501	797163	803859

a) Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.
b) Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.
c) Includes steam, combustion turbine (and diesel), and combined cycle units.
d) Capable of burning oil or gas equally.
e) See footnote c of Table 10.

TABLE 13

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY BY FUEL - SUMMER - % TOTAL
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
COAL	44.4	44.4	43.9	43.7	43.3	43.5	43.5	43.6	43.6	43.6	43.4
NUCLEAR	12.6	13.9	14.6	15.2	15.4	15.4	15.3	15.2	15.3	15.2	15.2
HYDRO	11.1	10.4	10.4	10.2	10.2	10.1	10.1	10.1	10.0	10.0	10.0
PUMPED STORAGE	2.5	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.6
GEOTHERMAL	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4
OIL	9.2	8.9	8.7	8.6	8.5	8.4	8.3	8.2	8.2	8.2	8.2
GAS	7.0	6.7	6.7	6.5	6.5	6.4	6.4	6.4	6.2	6.2	6.1
DUAL(OIL/GAS)FUEL	12.6	12.3	12.1	11.8	11.8	11.7	11.6	11.7	11.7	11.9	11.9
OTHER	.3	.5	.9	1.1	1.5	1.7	1.8	1.9	2.0	2.1	2.2
TOTAL(U.S.) [a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-CANADA											
COAL	21.8	21.4	21.5	21.3	21.5	21.6	21.6	21.4	21.7	22.5	22.7
NUCLEAR	13.5	14.3	14.3	16.0	15.9	16.5	17.0	16.9	16.7	16.5	16.4
HYDRO	54.3	54.0	53.8	52.8	52.9	52.5	52.2	52.6	52.5	52.0	51.8
PUMPED STORAGE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OIL	6.8	6.7	6.7	6.1	6.0	5.9	5.7	5.7	5.6	5.5	5.5
GAS	2.6	2.6	2.7	2.7	2.7	2.5	2.4	2.4	2.4	2.3	2.3
DUAL(OIL/GAS)FUEL	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.9
OTHER	.0	.0	.0	.0	.0	.1	.1	.1	.2	.2	.2
TOTAL(CANADA) [a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-MEXICO [b]											
COAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NUCLEAR	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
HYDRO	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
PUMPED STORAGE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	45.0	55.7	55.7	55.7	48.8	48.8	43.5	45.5	47.5	47.5	47.5
OIL	55.0	44.3	44.3	44.3	51.2	51.2	56.5	54.5	52.5	52.5	52.5
GAS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
DUAL(OIL/GAS)FUEL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OTHER	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL(MEXICO) [a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-TOTAL											
COAL	41.8	41.7	41.3	41.1	40.7	40.9	40.9	40.9	41.0	41.0	40.9
NUCLEAR	12.6	13.9	14.6	15.3	15.4	15.5	15.5	15.4	15.4	15.3	15.3
HYDRO	16.0	15.4	15.2	15.1	15.0	15.0	15.0	15.1	15.0	15.0	14.9
PUMPED STORAGE	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3
GEOTHERMAL	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.5
OIL	8.9	8.7	8.6	8.3	8.3	8.2	8.1	8.0	8.0	8.0	7.9
GAS	6.4	6.2	6.2	6.1	6.0	6.0	5.9	5.9	5.8	5.7	5.7
DUAL(OIL/GAS)FUEL	11.3	11.0	10.8	10.6	10.6	10.4	10.4	10.4	10.4	10.6	10.6
OTHER	.3	.5	.8	1.0	1.3	1.5	1.6	1.7	1.8	1.8	1.9
NERC-TOTAL [a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) Totals may not add due to rounding.
b) See footnote c of Table 10.

TABLE 14
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY[a] - WINTER - MW
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
NERC-U.S.											
ECAR	96664	99722	101138	101311	102567	104525	105356	105408	105679	106150	106450
ERCOT[b]	44880	46556	47428	51077	51671	51967	53168	53880	55223	55853	57601
MAAC	49978	51092	51266	51750	53391	53558	54345	54733	54822	54982	55521
MAIN	46215	49248	50495	50644	50668	50772	51022	51022	51094	50945	50784
CMNWLTH EDISON	19161	21401	22521	22521	22521	22521	22521	22521	22521	22421	22234
EAST MISSOURI	8259	8259	8300	8300	8300	8300	8300	8300	8300	8300	8300
S CENT ILLINOIS	9074	9915	10026	10026	10026	10026	10026	10026	10026	9969	9969
WIS-UPPER MICH	9721	9673	9648	9797	9821	9925	10175	10175	10247	10255	10281
MAPP	29266	30553	30523	30488	30484	30566	30777	30777	30777	30784	31184
NPCC	53418	57012	57038	57057	57307	57346	57215	57028	56940	57159	58355
NEW YORK	31540	33734	33877	33961	34211	34294	34389	34419	34484	34899	36095
NEW ENGLAND	21878	23278	23161	23096	23096	23052	22826	22609	22456	22260	22260
SERC	135482	139610	141850	144872	147100	148763	150606	152579	154297	157772	158557
FLORIDA[c]	28508	29590	30140	30300	30607	30885	31075	31135	32163	33682	34156
SOUTHERN	32682	34536	35553	37019	37089	37764	37834	37954	37985	38212	37971
TVA	29848	29848	29848	31018	32188	32188	32188	33400	33400	34612	34612
VACAR	44444	45636	46309	46535	47216	47926	49509	50090	50749	51266	51818
SPP	64812	65068	65162	65162	65289	65488	65710	65576	65901	66574	67042
SOUTHEAST	27596	27736	27750	27750	27881	27664	27818	27412	27080	27495	27495
WEST CENTRAL	22198	22339	22439	22439	22435	22851	22792	22922	22807	22969	23167
NORTHERN	15018	14993	14973	14973	14973	14973	15100	15242	16014	16110	16380
WSCC[d]	126006	126124	127831	130181	130497	130774	131298	131917	133381	134434	134765
NW POOL	50063	46965	47091	47095	47096	47119	47134	47174	47268	47298	47477
ROCKY MT-AREA	9798	10347	10373	10592	10617	10408	10407	10407	10884	11226	11230
ARIZ-N.MEX	13808	15926	15904	16643	16920	17282	17308	17358	17452	17562	17697
CALIF-SO.NEV	52337	52275	53995	55063	55840	55944	55985	56496	57306	57903	58361
TOTAL(U.S.)	646721	664985	672731	682542	688974	693759	699497	702920	708114	714653	720259
NERC-CANADA											
MAPP	6625	6606	6724	6842	7082	7901	8261	8261	8353	8633	8633
NPCC	57795	59424	60454	62444	62529	63599	65467	67109	67420	67801	67831
NEW BRUNSWICK	3194	3194	3185	3185	3185	3185	3185	3496	3496	3496	3496
NOVA SCOTIA[e]	1798	1951	1951	1951	1951	2101	2101	2251	2251	2551	2551
ONTARIO[f]	29501	30378	31360	32311	32353	33264	34175	34400	34711	34792	34822
QUEBEC	23302	23901	23958	24997	25040	25049	26006	26962	26962	26962	26962
WSCC	17686	17686	17686	18016	18271	18654	18654	18654	19014	19374	19574
TOTAL(CANADA)	82106	83716	84864	87302	87882	90154	92382	94024	94787	95808	96038
NERC-MEXICO[g]											
WSCC	928	1028	1028	1173	1173	1318	1318	1368	1418	1418	1418
TOTAL(MEXICO)	928	1028	1028	1173	1173	1318	1318	1368	1418	1418	1418
NERC-TOTAL	729755	749729	758623	771017	778029	785231	793197	798312	804319	811879	817715

a) At the time of actual and projected winter peak demand.
b) Excludes cogeneration and other non-ERCOT owned sources which are treated as capacity imports into ERCOT.
c) Excludes capacity of qualifying facilities (QFs) which are treated as capacity imports into the Florida subregion.
d) Because of subregional peak demand diversities, the sum of the individual subregional capacities at the time of the respective subregional peak demands may not equal the total WSCC (U.S.) capacity. e) Excludes 17 MW of tidal power.
f) Includes 3783 MW (winter) of mothballed capacity, some of which may be retired before 1996. Decisions as to when the retirements will occur have not been made. g) See footnote c of Table 10.

TABLE 15

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY BY FUEL - WINTER - MW
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
NERC-U.S.											
COAL	284611	290105	292222	294408	296060	298963	302894	303684	306569	308532	310941
NUCLEAR	81710	96733	99243	103862	106124	105940	105940	107152	107152	108364	108364
HYDRO[a]	70334[b]	67020	67440	67784	67872	68219	68413	68682	69077	69511	69440
PUMPED STORAGE	16419	16369	16369	16419	16719	17269	17879	17879	17879	17879	18816
GEOTHERMAL	1909	1970	2275	2570	2628	2643	2713	2713	2868	2918	2983
OIL[c]	64000	63632	63429	63515	63649	63425	63047	62600	63181	63428	64043
GAS[c]	42775	43024	42970	42892	42557	43042	42860	42684	42156	42025	41978
DUAL (OIL/GAS) FUEL[c,d]	82820	81786	82047	82707	82614	82552	83318	84094	85110	87284	88316
OTHER	2143	4346	6736	8385	10751	11706	12433	13432	14122	14712	15378
TOTAL (U.S.)	646721	664985	672731	682542	688974	693759	699497	702920	708114	714653	720259
NERC-CANADA											
COAL	17803	17956	18291	18677	19055	19810	19810	20271	20631	21571	21571
NUCLEAR	11021	11900	12881	13802	13802	14683	15564	15564	15564	15564	15564
HYDRO[a]	44629	45108	45166	46205	46488	47097	48414	49565	49938	49989	49989
PUMPED STORAGE	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	0	0	0	0	0	0	0	0	0	0	0
OIL[c]	5622	5662	5318	5318	5318	5315	5315	5315	5315	5315	5315
GAS[c]	2131	2190	2308	2370	2259	2259	2259	2259	2259	2259	2459
DUAL (OIL/GAS) FUEL[c,d]	900	900	900	900	900	900	900	900	900	900	900
OTHER	0	0	0	30	60	90	120	150	180	210	240
TOTAL (CANADA)	82106	83716	84864	87302	87882	90154	92382	94024	94787	95808	96038
NERC-MEXICO[e]											
COAL	0	0	0	0	0	0	0	0	0	0	0
NUCLEAR	0	0	0	0	0	0	0	0	0	0	0
HYDRO[a]	0	0	0	0	0	0	0	0	0	0	0
PUMPED STORAGE	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	473	573	573	573	573	573	573	623	673	673	673
OIL[c]	455	455	455	600	600	745	745	745	745	745	745
GAS[c]	0	0	0	0	0	0	0	0	0	0	0
DUAL (OIL/GAS) FUEL[c,d]	0	0	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0	0	0	0
TOTAL (MEXICO)	928	1028	1028	1173	1173	1318	1318	1368	1418	1418	1418
NERC-TOTAL											
COAL	302414	308061	310513	313085	315115	318773	322704	323955	327200	330103	332512
NUCLEAR	92731	108633	112124	117664	119926	120623	121504	122716	122716	123928	123928
HYDRO[a]	114963[b]	112128	112606	113989	114360	115316	116827	118247	119015	119500	119429
PUMPED STORAGE	16419	16369	16369	16419	16719	17269	17879	17879	17879	17879	18816
GEOTHERMAL	2382	2543	2848	3143	3201	3216	3286	3336	3541	3591	3656
OIL[c]	70077	69749	69202	69433	69567	69485	69107	68660	69241	69488	70103
GAS[c]	44906	45214	45278	45262	44816	45301	45119	44943	44415	44284	44437
DUAL (OIL/GAS) FUEL[c,d]	83720	82686	82947	83607	83514	83452	84218	84994	86010	88184	89216
OTHER	2143	4346	6736	8415	10811	11796	12553	13582	14302	14922	15618
NERC-TOTAL	729755	749729	758623	771017	778029	785231	793197	798312	804319	811879	817715

a) Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.
b) Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.
c) Includes steam, combustion turbine (and diesel), and combined cycle units.
d) Capable of burning oil or gas equally.
e) See footnote c of Table 10.

TABLE 16
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY BY FUEL - WINTER - % TOTAL
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
NERC-U.S.											
COAL	44.0	43.6	43.4	43.1	43.0	43.1	43.3	43.2	43.3	43.2	43.2
NUCLEAR	12.6	14.5	14.8	15.2	15.4	15.3	15.1	15.2	15.1	15.2	15.0
HYDRO	10.9	10.1	10.0	9.9	9.9	9.8	9.8	9.8	9.8	9.7	9.6
PUMPED STORAGE	2.5	2.5	2.4	2.4	2.4	2.5	2.6	2.5	2.5	2.5	2.6
GEOTHERMAL	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4
OIL	9.9	9.6	9.4	9.3	9.2	9.1	9.0	8.9	8.9	8.9	8.9
GAS	6.6	6.5	6.4	6.3	6.2	6.2	6.1	6.1	6.0	5.9	5.8
DUAL(OIL/GAS)FUEL	12.8	12.3	12.2	12.1	12.0	11.9	11.9	12.0	12.0	12.2	12.3
OTHER	.3	.7	1.0	1.2	1.6	1.7	1.8	1.9	2.0	2.1	2.1
TOTAL(U.S.)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-CANADA											
COAL	21.7	21.4	21.6	21.4	21.7	22.0	21.4	21.6	21.8	22.5	22.5
NUCLEAR	13.4	14.2	15.2	15.8	15.7	16.3	16.8	16.6	16.4	16.2	16.2
HYDRO	54.4	53.9	53.2	52.9	52.9	52.2	52.4	52.7	52.7	52.2	52.1
PUMPED STORAGE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OIL	6.8	6.8	6.3	6.1	6.1	5.9	5.8	5.7	5.6	5.5	5.5
GAS	2.6	2.6	2.7	2.7	2.6	2.5	2.4	2.4	2.4	2.4	2.6
DUAL(OIL/GAS)FUEL	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	.9	.9	.9
OTHER	.0	.0	.0	.0	.1	.1	.1	.2	.2	.2	.2
TOTAL(CANADA)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-MEXICO[b]											
COAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NUCLEAR	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
HYDRO	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
PUMPED STORAGE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	51.0	55.7	55.7	48.8	48.8	43.5	43.5	45.5	47.5	47.5	47.5
OIL	49.0	44.3	44.3	51.2	51.2	56.5	56.5	54.5	52.5	52.5	52.5
GAS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
DUAL(OIL/GAS)FUEL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OTHER	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL(MEXICO)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-TOTAL											
COAL	41.4	41.1	40.9	40.6	40.5	40.6	40.7	40.6	40.7	40.7	40.7
NUCLEAR	12.7	14.5	14.8	15.3	15.4	15.4	15.3	15.4	15.3	15.3	15.2
HYDRO	15.8	15.0	14.8	14.8	14.7	14.7	14.7	14.8	14.8	14.7	14.6
PUMPED STORAGE	2.2	2.2	2.2	2.1	2.1	2.2	2.3	2.2	2.2	2.2	2.3
GEOTHERMAL	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4
OIL	9.6	9.3	9.1	9.0	8.9	8.8	8.7	8.6	8.6	8.6	8.6
GAS	6.2	6.0	6.0	5.9	5.8	5.8	5.7	5.6	5.5	5.5	5.4
DUAL(OIL/GAS)FUEL	11.5	11.0	10.9	10.8	10.7	10.6	10.6	10.6	10.7	10.9	10.9
OTHER	.3	.6	.9	1.1	1.4	1.5	1.6	1.7	1.8	1.8	1.9
NERC-TOTAL[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

---

a) Totals may not add due to rounding.
b) See footnote c of Table 10.

ELECTRICAL ENERGY PRODUCTION

A region's NEL may be supplied by a combination of internal generation plus imports (or purchases) from others. Figure 9 shows that the electrical energy produced (generated) from primary energy sources in Region A may be used to supply internal load directly or it may also supply energy for pumping of hydro pumped storage units (or for charging of other energy storage type generating units). The hydro pumped storage units, in turn, can then generate electrical energy as scheduled. Electrical energy production less pumped storage load (input) plus pumped storage generation (output) equals Region A's internal generation for load. If Region A's internal generation is not adequate, then Region A will generally import (or purchase) additional energy from others. Region A may also export (or sell) energy to others. Table 18 shows the 1986 actual and 1987-1996 projected electrical energy production, internal generation, imports less exports, and NEL for NERC-U.S., NERC-CANADA, NERC-MEXICO, and NERC-TOTAL.

Figure 10 illustrates the projected growth in electrical energy production by fuel for NERC-U.S., NERC-CANADA, and NERC-MEXICO from 1987 to 1996. The year-by-year percentages for these three areas and for NERC-TOTAL are shown in Table 19. Table 17 shows similar electrical energy production by percentage fuel mix for all NERC regions for 1987 and 1996. The regional electrical energy production figures to which the Table 17 percentages apply are shown in Table 20. Further details of regional and subregional electrical energy production by fuel are included in Appendix B.

The total internal generation for load figures in Table 18 are shown on a regional basis in Table 21. Similarly, the imports (less exports) of Table 18 are shown on a regional basis in Table 22. The annual NEL totals of Table 18 were previously defined on a regional basis in Table 5.

The projected electrical energy production, internal generation, imports less exports, and NEL as described above assume that the projected plans for installed generating capacity as tabulated in the previous section will be realized on schedule. Based on these projections, the industry will require 22% more NEL in 1996 than in 1987.

Figure 9
REGIONAL ELECTRICAL ENERGY
PRODUCTION, GENERATION, AND NET ENERGY FOR LOAD

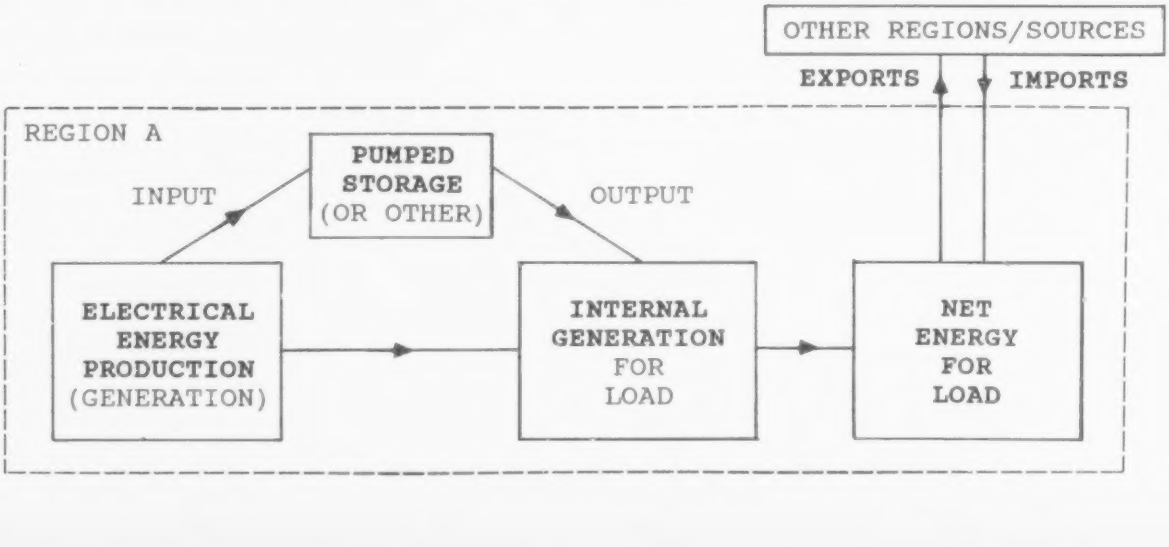

OTHER REGIONS/SOURCES
EXPORTS
IMPORTS
REGION A
INPUT
PUMPED STORAGE (OR OTHER)
OUTPUT
ELECTRICAL ENERGY PRODUCTION (GENERATION)
INTERNAL GENERATION FOR LOAD
NET ENERGY FOR LOAD

Figure 10
ELECTRICAL ENERGY PRODUCTION BY FUEL

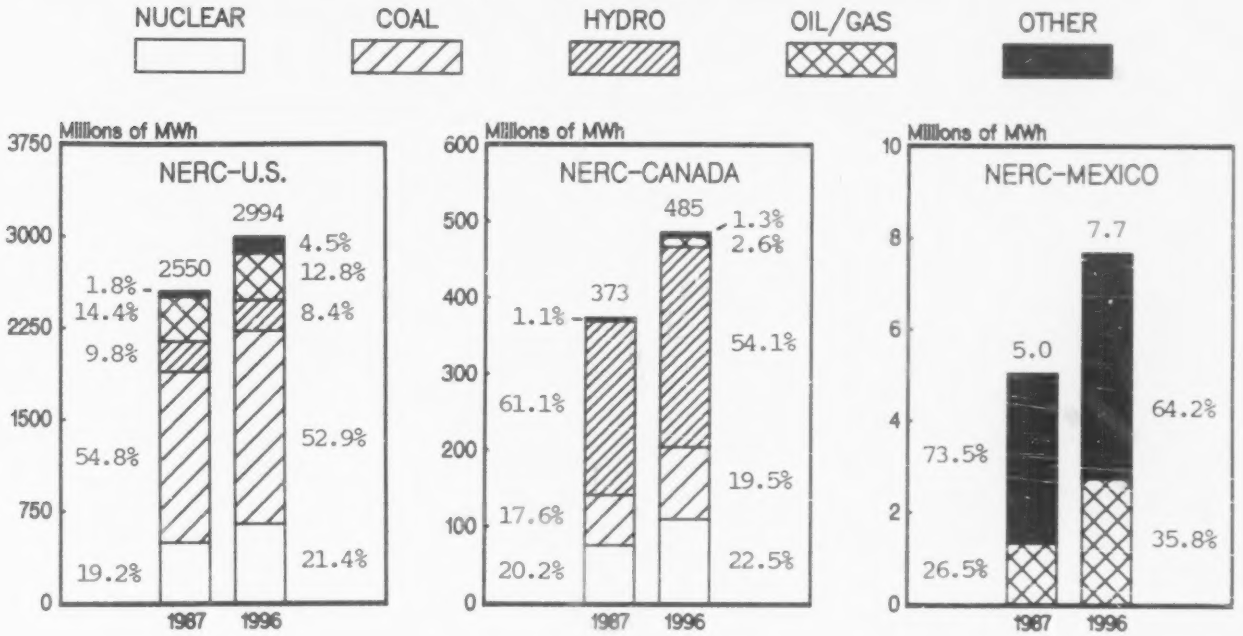


TABLE 17
ELECTRICAL ENERGY PRODUCTION BY FUEL (% TOTAL)

	1987					1996				
	Nuclear	Coal	Hydro[a]	Oil/Gas	Other	Nuclear	Coal	Hydro[a]	Oil/Gas	Other
ECAR	6.4	92.8	0.6	0.2	0.0	9.4	89.8	0.6	0.2	0.0
ERCOT	1.1	45.7	0.2	53.0	0.0	11.4	49.9	0.1	38.2	0.4
MAAC	34.8	52.9	2.0	9.2	1.1	34.6	48.5	1.7	7.9	10.0
MAIN	39.3	58.6	1.2	0.6	0.3	41.8	55.0	1.1	1.3	0.8
MAPP-U.S.	21.3	67.1	11.0	0.3	0.3	18.5	70.2	10.2	0.5	0.6
NPCC-U.S.	28.7	18.3	17.1	33.9	2.0	34.2	18.9	12.6	28.5	5.8
SERC	26.3	57.1	5.9	9.5	1.2	29.7	53.1	5.0	9.7	2.5
SPP	15.9	53.5	2.6	27.5	0.5	15.1	54.1	2.3	27.9	0.6
WSCC-U.S.	12.9	34.0	32.1	14.8	6.2	11.7	34.4	27.9	11.9	14.1
NERC-U.S.	**19.2**	**54.8**	**9.8**	**14.4**	**1.8**	**21.4**	**52.9**	**8.4**	**12.8**	**4.5**
MAPP-CAN.	0.0	23.5	75.9	0.6	0.0	0.0	27.5	71.8	0.7	0.0
NPCC-CAN.	28.8	10.6	59.8	0.8	0.0	32.3	11.5	54.2	1.6	0.4
WSCC-CAN.	0.0	38.5	58.7	2.8	0.0	0.0	42.3	46.2	7.0	4.5
NERC-CAN.	**20.2**	**17.6**	**61.1**	**1.1**	**0.0**	**22.5**	**19.5**	**54.1**	**2.6**	**1.3**
NERC-MEX.	**0.0**	**0.0**	**0.0**	**26.5**	**73.5**[b]	**0.0**	**0.0**	**0.0**	**35.8**	**64.2**[b]
NERC-TOTAL	**19.3**	**50.0**	**16.3**	**12.7**	**1.7**	**21.5**	**48.1**	**14.7**	**11.4**	**4.3**

a) Conventional hydro. Adverse hydro except for a few systems with median or average hydro.
b) Geothermal electrical energy production.

TABLE 18
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED TOTAL ELECTRICAL ENERGY PRODUCTION, INTERNAL GENERATION,
AND NET ENERGY FOR LOAD BY FUEL - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
COAL	1376401	1397836	1398493	1413049	1441455	1457629	1486934	1503311	1523222	1548591	1583979
NUCLEAR	421392	490537	565661	597950	611669	626227	635090	628267	636802	639100	641327
HYDRO[a]	291887[b]	249746	249116	248290	247349	247947	248937	248959	249602	250229	250781
OIL	126790	105567	81453	83735	78248	81046	81695	93734	97293	110241	116139
GAS	243938	260934	236562	215687	215275	217798	227971	234256	242372	254051	264976
GEOTHERMAL	13341	12545	13732	15133	16851	17138	17287	17687	17891	18973	19294
OTHER	21451	32411	54915	70268	84328	90097	92816	103159	111367	114755	117981
ELECTRIC PRODUCTION[c]	2495200	2549576	2599932	2644112	2695175	2737882	2790730	2829373	2878549	2935945	2994477
PUMP.STOR.LOAD(-)	22238	21157	19269	20121	20351	20595	21018	20522	20760	19958	21947
PUMP.STOR.GEN.(+)	17849	17231	16727	16733	16843	17063	17310	17013	17058	16371	17935
INTERNAL GENERATION[d]	2490811	2545650	2597390	2640724	2691667	2734350	2787022	2825864	2874847	2932358	2990465
IMPORTS-EXPORTS	41293	43393	54089	64561	70601	85958	92060	107961	119083	122151	126021
NET ENERGY FOR LOAD[e]	2532104	2589043	2651479	2705285	2762268	2820308	2879082	2933825	2993930	3054509	3116486
NERC-CANADA											
COAL	67424	65583	65401	65979	65712	67697	69272	72499	79044	83071	94433
NUCLEAR	67639	75298	84822	91562	98583	104067	110267	114594	115525	116717	109398
HYDRO[a]	221588	227725	230625	237045	245252	252978	254908	253272	254931	260142	262584
OIL	2664	1957	2063	1969	2152	2111	2192	2339	3200	4330	5305
GAS	1088	2334	3537	4005	3916	4244	5383	7036	7636	7394	7419
GEOTHERMAL	0	0	0	0	0	0	0	0	0	0	0
OTHER	226	32	32	54	123	197	760	1458	2890	4478	6130
ELECTRIC PRODUCTION[c]	360629	372929	386480	400614	415738	431294	442782	451198	463226	476132	485269
PUMP.STOR.LOAD(-)	0	0	0	0	0	0	0	0	[illegible]	0	0
PUMP.STOR.GEN.(+)	0	0	0	0	0	0	0	0	0	0	0
INTERNAL GENERATION[d]	360629	372929	386480	400614	415738	431294	442782	451198	463226	476132	485269
IMPORTS-EXPORTS	-3800	621	15	-3107	-6372	-10523	-7131	-4508	-4622	-4807	-1157
NET ENERGY FOR LOAD[e]	356829	373550	386495	397507	409366	420771	435651	446690	458604	471325	484112
NERC-MEXICO											
COAL	0	0	0	0	0	0	0	0	0	0	0
NUCLEAR	0	0	0	0	0	0	0	0	0	0	0
HYDRO[a]	0	0	0	0	0	0	0	0	0	0	0
OIL	1090	1332	1257	1526	1769	2031	2314	2265	2150	2387	2741
GAS	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	3100	3699	4084	4054	4054	4054	4054	4397	4827	4924	4924
OTHER	0	0	0	0	0	0	0	0	0	0	0
ELECTRIC PRODUCTION[c]	4190	5031	5341	5580	5823	6085	6368	6662	6977	7311	7665
PUMP.STOR.LOAD(-)	0	0	0	0	0	0	0	0	0	0	0
PUMP.STOR.GEN.(+)	0	0	0	0	0	0	0	0	0	0	0
INTERNAL GENERATION[d]	4190	5031	5341	5580	5823	6085	6368	6662	6977	7311	7665
IMPORTS-EXPORTS	-1356	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800
NET ENERGY FOR LOAD[e]	2834	3231	3541	3780	4023	4285	4568	4862	5177	5511	5865

TABLE 18 (cont.)
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED TOTAL ELECTRICAL ENERGY PRODUCTION, INTERNAL GENERATION, AND NET ENERGY FOR LOAD BY FUEL - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-TOTAL											
COAL	1443825	1463419	1463894	1479028	1507167	1525326	1556206	1575810	1602266	1631662	1678412
NUCLEAR	489031	565835	650483	689512	710252	730294	745357	742861	752327	755817	750725
HYDRO[a]	513475[b]	477471	479741	485335	492601	500925	503845	502231	504533	510371	513365
OIL	130544	108856	84773	87230	82169	85188	86201	98338	102643	116958	124185
GAS	245026	263268	240099	219692	219191	222042	233354	241292	250008	261445	272395
GEOTHERMAL	16441	16244	17816	19187	20905	21192	21341	22084	22718	23902	24218
OTHER	21677	32443	54947	70322	84451	90294	93576	104617	114257	119233	124111
ELECTRIC PRODUCTION[c]	2860019	2927536	2991753	3050306	3116736	3175261	3239880	3287233	3348752	3419388	3487411
PUMP.STOR.LOAD(-)	22238	21157	19269	20121	20351	20595	21018	20522	20760	19958	21947
PUMP.STOR.GEN.(+)	17849	17231	16727	16733	16843	17063	17310	17013	17058	16371	17935
INTERNAL GENERATION[d]	2855630	2923610	2989211	3046918	3113228	3171729	3236172	3283724	3345050	3415801	3483399
IMPORTS-EXPORTS	36137	42214	52304	59654	62429	73635	83129	101653	112661	115544	123064
	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------
NET ENERGY FOR LOAD[e]	2891767	2965824	3041515	3106572	3175657	3245364	3319301	3385377	3457711	3531345	3606463

a) Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.

b) Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.

c) Total electrical energy production by primary energy sources. Includes pumped storage load, but excludes pumped storage generation.

d) Total electrical energy generated internally to serve customers' load. Includes pumped storage generation, but excludes pumped storage load.

e) Total electrical energy required to serve customers' load. Includes internal generation plus imports less exports. Same as the NEL in Table 5.

TABLE 19
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCTION[a] BY FUEL - % TOTAL
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
COAL	55.2	54.8	53.8	53.4	53.5	53.2	53.3	53.1	52.9	52.7	52.9
NUCLEAR	16.9	19.2	21.8	22.6	22.7	22.9	22.8	22.2	22.1	21.8	21.4
HYDRO[b]	11.7	9.8	9.6	9.4	9.2	9.1	8.9	8.8	8.7	8.5	8.4
OIL	5.1	4.1	3.1	3.2	2.9	3.0	2.9	3.3	3.4	3.8	3.9
GAS	9.8	10.2	9.1	8.2	8.0	8.0	8.2	8.3	8.4	8.7	8.8
GEOTHERMAL	.5	.5	.5	.6	.6	.6	.6	.6	.6	.6	.6
OTHER	.9	1.3	2.1	2.7	3.1	3.3	3.3	3.6	3.9	3.9	3.9
ELECTRIC PRODUCTION[c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-CANADA											
COAL	18.7	17.6	16.9	16.5	15.8	15.7	15.6	16.1	17.1	17.4	19.5
NUCLEAR	18.8	20.2	21.9	22.9	23.7	24.1	24.9	25.4	24.9	24.5	22.5
HYDRO[b]	61.4	61.1	59.7	59.2	59.0	58.7	57.6	56.1	55.0	54.6	54.1
OIL	.7	.5	.5	.5	.5	.5	.5	.5	.7	.9	1.1
GAS	.3	.6	.9	1.0	.9	1.0	1.2	1.6	1.6	1.6	1.5
GEOTHERMAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OTHER	.1	.0	.0	.0	.0	.0	.2	.3	.6	.9	1.3
ELECTRIC PRODUCTION[c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-MEXICO											
COAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NUCLEAR	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
HYDRO[b]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OIL	26.0	26.5	23.5	27.3	30.4	33.4	36.3	34.0	30.8	32.6	35.8
GAS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	74.0	73.5	76.5	72.7	69.6	66.6	63.7	66.0	69.2	67.4	64.2
OTHER	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ELECTRIC PRODUCTION[c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-TOTAL											
COAL	50.5	50.0	48.9	48.5	48.4	48.0	48.0	47.9	47.8	47.7	48.1
NUCLEAR	17.1	19.3	21.7	22.6	22.8	23.0	23.0	22.6	22.5	22.1	21.5
HYDRO[b]	18.0	16.3	16.0	15.9	15.8	15.8	15.6	15.3	15.1	14.9	14.7
OIL	4.6	3.7	2.8	2.9	2.6	2.7	2.7	3.0	3.1	3.4	3.6
GAS	8.6	9.0	8.0	7.2	7.0	7.0	7.2	7.3	7.5	7.6	7.8
GEOTHERMAL	.6	.6	.6	.6	.7	.7	.7	.7	.7	.7	.7
OTHER	.8	1.1	1.8	2.3	2.7	2.8	2.9	3.2	3.4	3.5	3.6
ELECTRIC PRODUCTION[c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) Total electrical energy production by primary energy sources. Includes pumped storage load, but excludes pumped storage generation.

b) Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.

c) Totals may not add due to rounding.

TABLE 20
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCTION[a] - Millions kWh
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	416305	432569	435789	443961	447132	449627	454756	458809	465909	473509	480779
ERCOT	170291	175116	176121	181178	189194	194780	200955	208376	214913	224180	231707
MAAC	185472	183114	188597	192561	196402	200356	205787	209377	213833	216768	219722
MAIN	172959	178914	184101	188538	191439	195015	199014	202202	204303	207211	208737
CMNWLTH EDISON	66684	70353	73295	74750	76020	77965	79360	81070	82695	84155	85770
EAST MISSOURI	30833	30512	31062	32115	32303	32998	33696	33901	34068	34240	34418
S CENT ILLINOIS	34425	35679	36219	37433	37692	37799	38777	39315	39175	39762	38765
WIS-UPPER MICH	41017	42370	43525	44240	45424	46253	47181	47916	48365	49054	49784
MAPP	116293	117626	122651	123951	124660	125613	127893	128111	129054	130768	132362
NPCC	208544	207574	209757	210449	211685	211060	214981	219440	223721	230125	239150
NEW YORK	118845	118128	119464	119853	121555	123717	124949	127858	129890	132804	137825
NEW ENGLAND	89699	89446	90293	90596	90130	87343	90032	91582	93831	97321	101325
SERC	524631	553209	568140	582192	597002	611826	622426	624592	633065	643697	655249
FLORIDA	102799	113913	118072	121483	125285	127859	129845	131197	134178	138503	142259
SOUTHERN	145937	146047	148583	150907	154614	158437	159792	156551	155285	154034	154801
TVA	94925	108573	112181	118315	121236	123840	125301	124378	125266	127082	130227
VACAR	180970	184676	189304	191487	195867	201690	207488	212466	218336	224078	227962
SPP	223091	219985	221117	223213	228592	232062	238901	242015	246786	251042	256462
SOUTHEAST	96960	93716	93281	92889	92499	94580	98438	98770	99828	100925	102818
WEST CENTRAL	75026	73827	74674	75626	79948	80099	81963	83756	86109	87933	90116
NORTHERN	51105	52442	53162	54698	56145	57383	58500	59489	60849	62184	63528
WSCC	477614	481469	493659	498069	509069	517543	526017	536451	546965	558645	570309
NW POOL	208709	191098	197415	202193	204719	207687	210814	213674	217343	220027	222568
ROCKY MT-AREA	42988	41451	43457	44547	45988	46430	46973	48161	49302	50438	51667
ARIZ-N.MEX	51198	59591	64598	66282	65611	67788	69515	70886	72127	74043	75613
CALIF-SO.NEV	174719	189329	188189	185047	192751	195638	198715	203730	208193	214137	220461
TOTAL(U.S.)	2495200	2549576	2599932	2644112	2695175	2737882	2790730	2829373	2878549	2935945	2994477
NERC-CANADA											
MAPP	35258	34630	35306	34946	36780	40657	42437	43137	43581	43908	44348
NPCC	251020	261356	271369	283601	293941	303092	309810	315181	323611	333176	338690
NEW BRUNSWICK	11254	9572	10244	10683	10884	10959	11318	12266	15575	16804	18154
NOVA SCOTIA	7048	7197	7462	7912	8221	8907	9365	9655	9904	10179	10312
ONTARIO	119357	123820	130026	134306	138536	143026	148327	153060	157532	160193	161824
QUEBEC	113361	120767	123637	130700	136300	140200	140800	140200	140600	146000	148400
WSCC	74351	76943	79805	82067	85017	87545	90535	92880	96034	99048	102231
TOTAL(CANADA)	360629	372929	386480	400614	415738	431294	442782	451198	463226	476132	485269
NERC-MEXICO											
WSCC	4190	5031	5341	5580	5823	6085	6368	6662	6977	7311	7665
TOTAL(MEXICO)	4190	5031	5341	5580	5823	6085	6368	6662	6977	7311	7665
NERC-TOTAL	2860019	2927536	2991753	3050306	3116736	3175261	3239880	3287233	3348752	3419388	3487411

a) Total electrical energy production by primary energy sources. Includes pumped storage load, but excludes pumped storage generation.

TABLE 21
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED INTERNAL GENERATION FOR LOAD[a] - Millions kWh
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	415012	431159	434379	442551	445722	448217	453346	457399	464499	472099	479369
ERCOT	170291	175116	176121	181178	189194	194780	200955	208376	214913	224180	231707
MAAC	184541	182272	187766	191687	195489	199429	204847	208433	212883	215831	218777
MAIN	172927	178898	184083	188527	191415	194979	198976	202171	204255	207157	208665
CMNWLTH EDISON	66684	70353	73295	74750	76020	77965	79360	81070	82695	84155	85770
EAST MISSOURI	30801	30496	31044	32104	32279	32962	33658	33870	34020	34186	34346
S CENT ILLINOIS	34425	35679	36219	37433	37692	37799	38777	39315	39175	39762	38765
WIS-UPPER MICH	41017	42370	43525	44240	45424	46253	47181	47916	48365	49054	49784
MAPP	116293	117626	122651	123951	124660	125613	127893	128111	129054	130768	132362
NPCC	207071	206514	208665	209374	210551	210010	213896	218424	222634	229089	238156
NEW YORK	117864	117688	119094	119481	121234	123433	124625	127552	129553	132556	137556
NEW ENGLAND	89207	88826	89571	89893	89317	86577	89271	90872	93081	96533	100600
SERC	523110	551902	567020	581089	595920	610595	621112	623280	631779	642564	653657
FLORIDA	102799	113913	118072	121483	125285	127859	129845	131197	134178	138503	142259
SOUTHERN	145674	145879	148420	150749	154443	158276	159610	156373	155104	153850	154619
TVA	94547	108116	111879	118053	120956	123552	125000	124084	124973	126764	129847
VACAR	180090	183994	188649	190804	195236	200908	206657	211626	217524	223447	226932
SPP	223012	219939	221071	223167	228546	232016	238855	241969	246740	250996	256416
SOUTHEAST	96960	93716	93281	92889	92499	94580	98438	98770	99828	100925	102818
WEST CENTRAL	74947	73781	74628	75580	79902	80053	81917	83710	86063	87887	90070
NORTHERN	51105	52442	53162	54698	56145	57383	58500	59489	60849	62184	63528
WSCC	478554	482224	495634	499200	510170	518711	527142	537701	548090	559674	571356
NW POOL	208709	191098	197415	202193	204719	207687	210814	213674	217343	220027	222568
ROCKY MT-AREA	42940	41352	43340	44427	45860	46313	46859	48041	49182	50328	51554
ARIZ-N.MEX	51130	59497	64521	66220	65560	67755	69477	70849	72092	74010	75580
CALIF-SO.NEV	175775	190277	190358	186360	194031	196956	199992	205137	209473	215309	221654
TOTAL(U.S.)	2490811	2545650	2597390	2640724	2691667	2734350	2787022	2825864	2874847	2932358	2990465
NERC-CANADA											
MAPP	35258	34630	35306	34946	36780	40657	42437	43137	43581	43908	44348
NPCC	251020	261356	271369	283601	293941	303092	309810	315181	323611	333176	338690
NEW BRUNSWICK	11254	9572	10244	10683	10884	10959	11318	12266	15575	16804	18154
NOVA SCOTIA	7048	7197	7462	7912	8221	8907	9365	9655	9904	10179	10312
ONTARIO	119357	123820	130026	134306	138536	143026	148327	153060	157532	160193	161824
QUEBEC	113361	120767	123637	130700	136300	140200	140800	140200	140600	146000	148400
WSCC	74351	76943	79805	82067	85017	87545	90535	92880	96034	99048	102231
TOTAL(CANADA)	360629	372929	386480	400614	415738	431294	442782	451198	463226	476132	485269
NERC-MEXICO											
WSCC	4190	5031	5341	5580	5823	6085	6368	6662	6977	7311	7665
TOTAL(MEXICO)	4190	5031	5341	5580	5823	6085	6368	6662	6977	7311	7665
NERC-TOTAL	2855630	2923610	2989211	3046918	3113228	3171729	3236172	3283724	3345050	3415801	3483399

a) Total electrical energy production by primary energy sources. Includes pumped storage generation, but excludes pumped storage load.

TABLE 22

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED NET ELECTRICAL ENERGY IMPORTS (LESS EXPORTS) - Millions kWh
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	-24767	-32159	-25579	-24651	-21322	-17117	-15146	-12299	-12299	-12299	-12169
ERCOT [a]	20505	20699	23734	24806	2436	26623	28121	29105	31018	30625	31702
MAAC	12515	17156	15595	15097	14709	14332	12405	12284	11336	11800	12172
MAIN	4263	300	-423	-1748	-1188	-1305	-1689	-1495	-115	378	2424
CMNWLTH EDISON	3889	1170	455	475	730	335	490	380	405	595	680
EAST MISSOURI	195	376	789	248	696	665	611	975	1357	1706	2084
S CENT ILLINOIS	-837	-2395	-2502	-3544	-3330	-2994	-3440	-3531	-2881	-2992	-1471
WIS-UPPER MICH	1016	1149	835	1073	716	689	650	681	1004	1069	1131
MAPP	-9469	-6346	-8754	-9250	-7595	-6603	-6780	-4569	-3321	-2778	-2046
NPCC	20794	25439	26671	28553	30969	35787	36766	36283	36162	34161	30078
NEW YORK	10638	13179	14192	15709	16724	16740	17756	16771	16786	15786	12786
NEW ENGLAND	10156	12260	12479	12844	14245	19047	19010	19512	19376	18375	17292
SERC	22299	-639	2101	3432	3304	3930	6652	16108	21224	24733	27458
FLORIDA	14066	5953	5932	5921	6310	7970	9944	13022	14263	14211	14366
SOUTHERN	-11272	-10718	-10192	-10039	-11078	-11975	-11008	-5263	-1443	2404	4052
TVA	13831	13	-204	111	152	38	-197	219	243	270	-51
VACAR	5674	4113	6565	7439	7920	7897	7913	8130	8161	7848	9091
SPP	-6511	593	3700	4429	4142	5559	5166	6965	7790	9615	9756
SOUTHEAST	2530	8119	9553	10073	12319	11951	11201	12589	13808	15274	15714
WEST CENTRAL	-5274	-3242	-2116	-1501	-3762	-1939	-1676	-1419	-1674	-1263	-1514
NORTHERN	-3767	-4284	-3737	-4143	-4415	-4453	-4359	-4205	-4344	-4396	-4444
WSCC	1664	18350	17044	23893	23221	24752	26565	25579	27288	25916	26646
NW POOL	-28243	-1890	-3264	-4048	-3809	-4016	-4113	-4743	-4925	-4098	-3817
ROCKY MT-AREA	-8125	-3623	-4062	-4167	-4183	-3588	-3008	-3045	-3026	-3013	-3013
ARIZ-N.MEX	326	-5353	-7734	-7074	-4701	-5014	-5021	-4591	-3762	-4149	-3858
CALIF-SO.NEV	37706	29216	32104	39182	35914	37370	38707	37958	39001	37176	37334
TOTAL(U.S.)	41293	43393	54089	64561	70601	85958	92060	107961	119083	122151	126021
NERC-CANADA											
MAPP	-8149	-6536	-5693	-4240	-5055	-8022	-8894	-8612	-8117	-7666	-7353
NPCC	5778	7626	6179	1457	-993	-2177	2089	4428	3819	3183	6522
NEW BRUNSWICK	-279	1610	1281	1224	1424	1720	1747	1158	-1801	-2687	-3698
NOVA SCOTIA	540	697	584	547	599	151	20	20	20	20	20
ONTARIO	1217	1219	-986	-2214	-3516	-5158	-5978	-7550	-8700	-7850	-6100
QUEBEC [b]	4300	4100	5300	1900	500	1100	6300	10800	14300	13700	16300
WSCC	-1429	-469	-471	-324	-324	-324	-326	-324	-324	-324	-326
TOTAL(CANADA)	-3800	621	15	-3107	-6372	-10523	-7131	-4508	-4622	-4807	-1157
NERC-MEXICO											
WSCC	-1356	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800
TOTAL(MEXICO)	-1356	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800	-1800
NERC-TOTAL	36137	42214	52304	59654	62429	73635	83129	101653	112661	115544	123064

a) Includes cogeneration and other non-ERCOT owned sources.
b) Although Quebec exports electrical energy to the United States, it also imports energy from Churchill Falls in Labrador (Newfoundland), sometimes becoming a net importer of electrical energy. Because Churchill Falls is not a NERC member, this results in NPCC (Canada) becoming a net importer in certain years, and reduces the amount which NERC-CANADA as a whole appears to be exporting to the United States.

FOSSIL FUEL REQUIREMENTS

This section of the report provides a tabulation of the fossil fuels actually used in 1986 and projected to be used over the 1987-1996 period for electrical energy production by coal, oil, and natural gas. These estimates of fuel use were reported directly to NERC.

Table 23 shows the actual and projected coal requirements for electrical energy production for NERC-U.S., NERC-CANADA, NERC-MEXICO, and NERC-TOTAL. These same coal requirements are shown by NERC region and subregion in Table 24. Tables 25 and 26 show similar data for oil, while Tables 27 and 28 summarize natural gas requirements.

NERC-TOTAL coal use is projected to increase by 16% (15% in the U.S. and 41% in Canada) from 1987 to 1996. Oil is also estimated to increase for NERC-TOTAL over the forecast period by 14% (10% in U.S., 138% in Canada, and 104% in Mexico). Net natural gas use in NERC, however, is projected to increase by only 2% (0.3% increase in the U.S. and 195% increase in Canada).

Appendix C provides further detail on the industry's fossil fuel requirements by NERC region and subregion for particular types of coal, oil, and natural gas.

TABLE 23
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

COAL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION BY TYPE - 1000's TONS
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
WESTERN LIGNITE [a]	62662	67302	70041	70348	72326	74225	73643	76961	80776	81854	84667
WESTERN COAL [a]	201001	222730	228094	229851	238008	241612	247683	250382	256167	264435	272475
OTHER COAL [a]	229007	219676	219889	220551	224835	227218	231326	231853	232141	233024	239933
TOTAL (U.S.) [b]	674660	694398	699074	704818	720079	728775	740242	748356	761264	774793	795665
NERC-CANADA											
WESTERN LIGNITE	9021	9035	9467	9755	9947	10222	10701	10939	11120	11405	11871
WESTERN COAL	20966	21967	22470	23306	24541	25532	26637	27156	28192	29549	30694
OTHER COAL	9658	8329	7701	7351	6540	6516	6402	7022	8860	9461	12720
TOTAL (CANADA)	39645	39331	39638	40412	41028	42270	43740	45117	48172	50415	55285
NERC-MEXICO											
WESTERN LIGNITE	0	0	0	0	0	0	0	0	0	0	0
WESTERN COAL	0	0	0	0	0	0	0	0	0	0	0
OTHER COAL	0	0	0	0	0	0	0	0	0	0	0
TOTAL (MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL											
WESTERN LIGNITE [a]	71683	76337	79508	80103	82273	84447	84344	87900	91896	93259	96538
WESTERN COAL [a]	221967	244697	250564	253157	262549	267144	274320	277538	284359	293984	303169
OTHER COAL [a]	238665	228005	227590	227902	231375	233734	237728	238875	241001	242485	252653
NERC-TOTAL [b]	714305	733729	738712	745230	761107	771045	783982	793473	809436	825208	850950

a) Western lignite, western coal, and other coal do not add to the total by the amount of the ECAR coal figures on Table 24.
b) Includes ECAR coal figures shown on Table 24.

TABLE 24
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL COAL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION - 1000's TONS
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	181990	184690	181050	184068	184910	185720	187590	189160	192180	195480	198590
ERCOT	57023	61655	63409	63444	65686	67790	70601	73604	79672	83673	88755
MAAC	40036	39524	39588	39926	38842	38501	38989	39408	39239	39640	40881
MAIN	55688	53408	51233	51890	53081	52913	55658	56374	56302	58393	58019
CMNWLTH EDISON	13509	11720	9610	8570	9410	8700	9640	10270	10250	10830	11420
EAST MISSOURI	9999	10290	9695	10803	11443	11083	12045	12257	11586	12665	12400
S CENT ILLINOIS	16110	14445	14683	15051	14363	14956	15420	15147	15577	15801	14778
WIS-UPPER MICH	16070	16953	17245	17466	17865	18174	18553	18700	18889	19097	19421
MAPP	40926	52107	55738	54547	55662	56567	55042	56057	56529	56971	58908
NPCC	13621	15128	15013	14820	15267	15648	16122	16316	16714	17228	17814
NEW YORK	8316	9095	9471	9255	9940	10309	10761	10956	10923	11349	11685
NEW ENGLAND	5305	6033	5542	5565	5327	5339	5361	5360	5791	5879	6129
SERC	135965	126793	127894	127389	134036	135312	137472	137413	137855	137471	143520
FLORIDA	15152	15004	17918	20455	21538	21728	21882	22430	22442	22356	22706
SOUTHERN	48825	44474	44084	43648	45941	47215	47961	46657	46250	46742	47011
TVA	34735	33391	30210	29229	29513	29324	28769	26637	27003	25798	28411
VACAR	37253	33924	35682	34047	37044	37045	38860	41689	42160	42575	45392
SPP	69296	72366	73393	74169	77094	77602	78493	79329	80701	81838	83015
SOUTHEAST	17844	16851	16812	16842	16541	16675	17346	17461	17823	18003	17944
WEST CENTRAL	26685	29133	29576	30394	32626	32528	32698	33323	34157	34705	35423
NORTHERN	24767	26382	27005	26933	27927	28399	28449	28545	28721	29130	29648
WSCC	80115	88727	91756	94565	95501	98722	100275	100695	102072	104099	106163
NW POOL	28737	36102	37253	39954	41430	42472	42609	42584	42455	43041	42843
ROCKY MT-AREA	17053	16431	17050	17616	17745	18250	18697	19335	19883	20567	21282
ARIZ-N.MEX	19667	21471	22390	22597	21894	23117	23779	24307	24695	25392	26233
CALIF-SO.NEV	14658	14723	15063	14398	14432	14883	15190	14469	15039	15099	15805
TOTAL(U.S.)	674660	694398	699074	704818	720079	728775	740242	748356	761264	774793	795665
NERC-CANADA											
MAPP	7759	7852	8402	8671	8874	9148	9633	9839	10020	10305	10771
NPCC	12742	11613	10828	10523	9531	9251	9131	9822	11660	12261	15520
NEW BRUNSWICK	517	580	710	1105	1177	1141	1200	1538	2400	2422	2429
NOVA SCOTIA	2136	2174	2293	2346	2389	2584	2987	3082	3290	3407	3568
ONTARIO	10089	8859	7825	7072	5965	5526	4944	5202	5970	6432	9523
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	19144	19866	20408	21218	22623	23871	24976	25456	26492	27849	28994
TOTAL(CANADA)	39645	39331	39638	40412	41028	42270	43740	45117	48172	50415	55285
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	714305	733729	738712	745230	761107	771045	783982	793473	809436	825208	850950

TABLE 25

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

OIL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION BY TYPE - 1000's BARRELS
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
DISTILLATE OIL[a]	12292	15038	11659	14264	12158	12572	11085	12335	13038	14308	15522
DISTILLATE OIL-ST	6827	5529	5180	5060	5110	5480	5704	5769	5915	6283	6582
DISTILLATE OIL-CT	4655	8489	6153	8886	6838	6911	5237	6354	6926	7603	8565
DISTILLATE OIL-CC	810	1020	326	318	210	181	144	212	197	422	375
RESIDUAL OIL[b]	204236	167567	130755	132368	124236	129145	131784	150681	156057	175140	185268
RESIDUAL OIL-ST	203715	166521	130244	130885	123735	128618	131238	150007	155342	173232	182716
RESIDUAL OIL-CT	327	470	436	409	394	409	437	570	605	678	913
RESIDUAL OIL-CC	194	576	75	74	107	118	109	104	110	1230	1639
CRUDE OIL-ST	0	0	0	0	0	0	0	0	0	0	0
TOTAL (U.S.)	216528	182605	142414	146632	136394	141717	142869	163016	169095	189448	200790
NERC-CANADA											
DISTILLATE OIL[a]	348	342	335	325	340	318	330	301	323	392	579
DISTILLATE OIL-ST	319	285	279	268	284	265	279	263	270	277	283
DISTILLATE OIL-CT	29	57	56	57	56	53	51	38	53	115	296
DISTILLATE OIL-CC	0	0	0	0	0	0	0	0	0	0	0
RESIDUAL OIL[b]	4501	3235	3333	3217	3524	3651	3360	3538	4871	6518	7950
RESIDUAL OIL-ST	4501	3235	3333	3217	3524	3651	3360	3538	4871	6518	7950
RESIDUAL OIL-CT	0	0	0	0	0	0	0	0	0	0	0
RESIDUAL OIL-CC	0	0	0	0	0	0	0	0	0	0	0
CRUDE OIL-ST	0	0	0	0	0	0	0	0	0	0	0
TOTAL (CANADA)	4849	3577	3668	3542	3864	3969	3690	3839	5194	6910	8529
NERC-MEXICO											
DISTILLATE OIL[a]	44	60	0	157	0	0	0	0	0	0	0
DISTILLATE OIL-ST	0	0	0	0	0	0	0	0	0	0	0
DISTILLATE OIL-CT	44	60	0	157	0	0	0	0	0	0	0
DISTILLATE OIL-CC	0	0	0	0	0	0	0	0	0	0	0
RESIDUAL OIL[b]	2141	2575	2467	2888	3471	3985	4540	4444	4218	4683	5378
RESIDUAL OIL-ST	2141	2575	2467	2888	3471	3985	4540	4444	4218	4683	5378
RESIDUAL OIL-CT	0	0	0	0	0	0	0	0	0	0	0
RESIDUAL OIL-CC	0	0	0	0	0	0	0	0	0	0	0
CRUDE OIL-ST	0	0	0	0	0	0	0	0	0	0	0
TOTAL (MEXICO)	2185	2635	2467	3045	3471	3985	4540	4444	4218	4683	5378
NERC-TOTAL											
DISTILLATE OIL[a]	12684	15440	11994	14746	12498	12890	11415	12636	13361	14700	16101
DISTILLATE OIL-ST	7146	5814	5459	5328	5394	5745	5983	6032	6185	6560	6865
DISTILLATE OIL-CT	4728	8606	6209	9100	6894	6964	5288	6392	6979	7718	8861
DISTILLATE OIL-CC	810	1020	326	318	210	181	144	212	197	422	375
RESIDUAL OIL[b]	210878	173377	136555	138473	131231	136781	139684	158663	165146	186341	198596
RESIDUAL OIL-ST	210357	172331	136044	136990	130730	136254	139138	157989	164431	184433	196044
RESIDUAL OIL-CT	327	470	436	409	394	409	437	570	605	678	913
RESIDUAL OIL-CC	194	576	75	74	107	118	109	104	110	1230	1639
CRUDE OIL-ST	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	223562	188817	148549	153219	143729	149671	151099	171299	178507	201041	214697

a) Includes No.1 and No.2 fuel oil, kerosene, and jet fuel. Also includes amounts used at coal-burning plants for startup and for flame stabilization.

b) Includes No.4, No.5, and No.6 fuel oil.

TABLE 26
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL OIL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION - 1000's BARRELS
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	2905	2796	2796	2796	2796	2788	2788	2788	2788	2803	2854
ERCOT	573	1019	1398	1549	1823	1896	2129	2262	2393	2565	2715
MAAC	32884	17144	17771	16600	13659	12719	11949	13156	13942	17286	19316
MAIN	5117	1875	1243	1041	1252	1216	1848	2019	2467	3387	3728
CMNWLTH EDISON	4297	965	410	470	700	640	1255	1425	1565	2460	2830
EAST MISSOURI	368	463	452	253	220	237	246	177	290	334	411
S CENT ILLINOIS	272	310	248	230	249	254	263	338	533	513	406
WIS-UPPER MICH	180	137	133	88	83	85	84	79	79	80	81
MAPP	422	319	345	515	477	[illegible]	555	693	565	647	650
NPCC	116097	100515	74242	84231	74293	77732	77243	85758	89154	96951	101340
NEW YORK	53457	46289	38375	44486	44966	49320	48870	53882	57136	58670	63841
NEW ENGLAND	62640	54226	35867	39745	29327	28412	28373	31876	32018	38281	37499
SERC	50716	52908	39218	35878	37265	39222	40520	44506	44441	51416	56645
FLORIDA	44220	47839	34264	32721	34000	35390	36720	40966	40655	47616	52536
SOUTHERN	877	746	705	717	677	774	520	578	619	575	602
TVA	357	1710	789	608	597	632	649	596	577	631	759
VACAR	5262	2613	3460	1832	1991	2426	2631	2366	2590	2594	2748
SPP	2151	1817	2027	1936	2221	3079	2929	8686	10131	11070	10134
SOUTHEAST	1812	1413	1654	1517	1755	2604	2445	8204	9661	10586	9626
WEST CENTRAL	111	106	106	112	150	150	152	154	155	159	161
NORTHERN	228	298	267	307	316	325	332	328	315	325	347
WSCC [a]	5663	4212	3374	2086	2608	2538	2908	3148	3214	3323	3408
NW POOL	274	0	0	0	0	287	499	499	499	499	499
ROCKY MT-AREA	29	25	25	49	55	73	95	119	163	189	218
ARIZ-N.MEX	77	328	162	111	91	92	127	210	284	370	458
CALIF-SO.NEV	5283	3859	3187	1926	2462	2086	2187	2320	2268	2265	2233
TOTAL(U.S.)	216528	182605	142414	146632	136394	141717	142869	163016	169095	189448	200790
NERC-CANADA											
MAPP	36	29	22	22	21	19	17	17	17	17	18
NPCC	4813	3548	3646	3520	3843	3950	3673	3822	5177	6893	8511
NEW BRUNSWICK	3522	1980	2171	1522	1499	1678	2012	2158	3853	5648	7661
NOVA SCOTIA	1049	1304	1239	1774	2108	2058	1437	1471	1118	988	418
ONTARIO	242	264	236	224	236	214	224	193	206	257	432
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	4849	3577	3668	3542	3864	3969	3690	3839	5194	6910	8529
NERC-MEXICO											
WSCC	2185	2635	2467	3045	3471	3985	4540	4444	4218	4683	5378
TOTAL(MEXICO)	2185	2635	2467	3045	3471	3985	4540	4444	4218	4683	5378
NERC-TOTAL	223562	188817	148549	153219	143729	149671	151099	171299	178507	201041	214697

a) Excludes cogeneration fuel consumption.

TABLE 27
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NATURAL GAS REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION BY TYPE - 1000 MCF
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
FIRM NAT.GAS[a]	1630102	1784954	1528768	1372868	1345716	1331776	1406594	1501582	1558519	1615533	1712328
FIRM NAT.GAS-ST	1547915	1697792	1440594	1290733	1259347	1241606	1311343	1387940	1437529	1492211	1588179
FIRM NAT.GAS-CT	11583	8322	7679	7837	9068	14118	18902	22310	26515	24718	26271
FIRM NAT.GAS-CC	70604	78840	80495	74298	77301	76052	76349	91332	94475	98604	97878
INTER.NAT.GAS[a]	692274	728778	732132	698769	708551	735124	763230	726023	750251	784631	782675
INTER.NAT.GAS-ST	658514	680876	687397	655766	655023	653728	657405	602628	604689	606589	593509
INTER.NAT.GAS-CT	16219	22817	24362	22340	20020	21955	24811	27458	29485	33806	37078
INTER.NAT.GAS-CC	17541	25085	20373	20663	33508	59441	81014	95937	116077	144236	152088
TOTAL (U.S.)[b]	2490945	2702728	2462315	2267401	2256087	2268104	2371462	2436997	2513802	2613350	2711007
NERC-CANADA											
FIRM NAT.GAS	12248	26666	43123	46739	46330	37387	34634	42099	48711	46058	46233
FIRM NAT.GAS-ST	3899	18881	31872	32742	30707	24476	23521	29106	34564	32600	32632
FIRM NAT.GAS-CT	8349	7785	11251	13997	15623	12911	11113	12993	14147	13458	13601
FIRM NAT.GAS-CC	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS	21	40	40	40	40	10832	23163	32625	32625	32625	32625
INTER.NAT.GAS-ST	12	40	40	40	40	10832	23163	32625	32625	32625	32625
INTER.NAT.GAS-CT	9	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS-CC	0	0	0	0	0	0	0	0	0	0	0
TOTAL (CANADA)	12269	26706	43163	46779	46370	48219	57797	74724	81336	78683	78858
NERC-MEXICO											
FIRM NAT.GAS	0	0	0	0	0	0	0	0	0	0	0
FIRM NAT.GAS-ST	0	0	0	0	0	0	0	0	0	0	0
FIRM NAT.GAS-CT	0	0	0	0	0	0	0	0	0	0	0
FIRM NAT.GAS-CC	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS-ST	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS-CT	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS-CC	0	0	0	0	0	0	0	0	0	0	0
TOTAL (MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL											
FIRM NAT.GAS[a]	1642350	1811620	1571891	1419607	1392046	1369163	1441228	1543681	1607230	1661591	1758561
FIRM NAT.GAS-ST	1551814	1716673	1472466	1323475	1290054	1266082	1334864	1417046	1472093	1524811	1620811
FIRM NAT.GAS-CT	19932	16107	18930	21834	24691	27029	30015	35303	40662	38176	39872
FIRM NAT.GAS-CC	70604	78840	80495	74298	77301	76052	76349	91332	94475	98604	97878
INTER.NAT.GAS[a]	692295	728818	732172	698809	708591	745956	786393	758648	782876	817256	815300
INTER.NAT.GAS-ST	658526	680916	687437	655806	655063	664560	680568	635253	637314	639214	626134
INTER.NAT.GAS-CT	16228	22817	24362	22340	20020	21955	24811	27458	29485	33806	37078
INTER.NAT.GAS-CC	17541	25085	20373	20663	33508	59441	81014	95937	116077	144236	152088
NERC-TOTAL[b]	2503214	2729434	2505478	2314180	2302457	2316323	2429259	2511721	2595138	2692033	2789865

a) Firm and interruptible natural gas subtotals do not add to the total by the amount of the SERC (Florida) natural gas figures shown on Table 28. SERC (Florida) does not distinguish between firm and interruptible natural gas.
b) Includes SERC (Florida) natural gas figures shown on Table 28.

TABLE 28

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL NATURAL GAS REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION - 1000 MCF
(1987-1996 FORECAST)

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	8590	6400	6400	6400	6400	1500	1500	1500	1500	1500	7000
ERCOT	944770	952461	891859	828460	821529	816086	829219	857301	847313	901695	916798
MAAC	40825	89888	80918	76665	71502	71717	63359	71464	73438	74309	77918
MAIN	7793	2505	2836	2958	2710	2530	3567	4723	6052	7477	8354
CMNWLTH EDISON	5032	600	1155	695	180	385	510	695	795	1455	1855
EAST MISSOURI	349	260	260	260	260	260	260	260	260	260	260
S CENT ILLINOIS	503	371	176	192	382	286	217	650	1213	1004	1322
WIS-UPPER MICH	1909	1274	1245	1811	1888	1599	2580	3118	3784	4758	4917
MAPP	3277	3921	3326	3344	3954	4448	4499	4634	3972	4014	4533
NPCC	147492	133330	125112	113143	105469	108242	93108	90016	95642	94391	96128
NEW YORK	131450	126700	120400	107600	92400	83500	72300	62300	58300	52700	52700
NEW ENGLAND	16042	6630	4712	5543	13069	24742	20808	27716	37342	41691	43428
SERC	188755	194764	212670	204526	211882	218244	223801	239692	246172	277076	274711
FLORIDA	168569	188996	201415	195764	201820	201204	201638	209392	205032	213186	216004
SOUTHERN	18776	5156	5193	5351	5193	5226	5041	5113	5368	5242	5232
TVA[a]	0	0	0	0	0	0	0	0	0	0	0
VACAR	1410	612	6062	3411	4869	11814	17122	25187	35772	58648	53475
SPP	671399	627363	614028	609326	594906	611169	666684	634562	647076	678310	677488
SOUTHEAST	411824	390049	377342	377276	358532	371058	408556	363574	365481	382968	367805
WEST CENTRAL	247702	222459	221278	216031	219198	220763	234896	242275	251635	260415	271547
NORTHERN	11873	14855	15408	16019	17176	19348	23232	28713	29960	34927	38136
WSCC[b]	478044	692096	525166	422579	437735	434168	485725	533105	592637	574578	648077
NW POOL	1468	11100	12876	15552	15132	24793	42300	42221	42221	41693	42624
ROCKY MT-AREA	4353	6007	6174	6037	6120	6304	6691	6944	7631	5320	4069
ARIZ-N.MEX	50132	39508	42649	39704	40442	35073	38954	42679	47953	51865	51121
CALIF-SO.NEV	422091	635481	463467	361286	376041	367998	397780	441261	494832	475700	550263
TOTAL(U.S.)	2490945	2702728	2462315	2267401	2256087	2268104	2371462	2436997	2513802	2613350	2711007
NERC-CANADA											
MAPP	671	2061	7777	8450	11504	9233	4938	6322	6642	5465	4371
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	11598	24645	35386	38329	34866	38986	52859	68402	74694	73218	74487
TOTAL(CANADA)	12269	26706	43163	46779	46370	48219	57797	74724	81336	78683	78858
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	2503214	2729434	2505478	2314180	2302457	2316323	2429259	2511721	2595138	2692033	2789865

a) Gas is used in 30% of TVA's gas turbines when available and economic. TVA does not predict natural gas usage in the long range planning process.
b) Excludes cogeneration fuel consumption.

PLANNED GENERATING UNIT CHANGES

This section of the report tabulates the planned NERC generating unit additions, retirements, and oil-to-coal conversions over the January 1, 1987 to December 31, 1996 period.

Table 29 summarizes the planned generating unit changes over the forecast period in NERC-U.S., NERC-CANADA, NERC-MEXICO, and NERC-TOTAL. In this table, all non-utility generators are grouped into one category while utility-owned capacity is grouped by fuel. Planned generating capacity additions for NERC over the forecast period total 92,900 MW. Of this total, about 81,200 MW or about 87.5% will be utility owned capacity and the other 12.5% will be non-utility generators. Planned retirements during this period will approach 10,600 MW, and oil-to-coal conversions are estimated to be only about 1,700 MW.

Table 30 tabulates the total projected (utility and non-utility) generating unit additions by NERC region and subregion. Similarly, Tables 31 through 38 show utility planned capacity additions by fuel and by NERC region and subregion. A detailed listing of the total projected (utility and non-utility) generating unit additions by in-service date is included in Appendix D. Similarly, detailed listings of utility planned capacity additions by in-service date and by fuel are included in Appendices E through K.

The estimated 11,700 MW of non-utility generator capacity additions of Table 29 are shown by NERC region and subregion in Table 39. This 11,700 MW of NUG capacity is limited to only those NUGs which are projected to sell electrical energy or capacity, or both, to electric utilities and which are reported as generating capacity additions by electric utilities. NUGs treated by utilities as a reduction to peak demand or as capacity imports are not included in Tables 29 or 39. Details on the specific non-utility generating units comprising Table 39 are included in Appendix L.

Additional information on the 10,600 MW of planned generating unit retirements is summarized in Table 40 and detailed by in-service date in Appendix N.

All of the generating unit Appendices D through N list the generators chronologically according to in-service date (year/month). Subtotals based on summer MW ratings are included for each year with a MW total for the forecast period.

The specific codes used throughout the generating unit Appendices D through N for unit type, fuel type, and construction status are listed on the last page of the report. Identification of generators as to utility or non-utility ownership is defined under the U/NU (Utility/Non-Utility) category also on the last page. States and provinces in which the units are located are denoted by their two-character postal codes.

Generating units which were identified by the utilities as jointly-owned are denoted with a "J" in the far right-hand column of Appendices D through N. In these appendices, only the name of the majority utility owner is listed, along with the total summer MW generating capability of the unit. However, Appendix M gives additional detail on jointly-owned generating units.

Utility system abbreviations follow the conventions used in the regional IE-411 reports to the U.S. Department of Energy (DOE).

TABLE 29
NERC GENERATING UNIT CHANGES
ADDITIONS, RETIREMENTS, AND CONVERSIONS (1987-1996)

	NERC-U.S.		NERC-CANADA		NERC-MEXICO[a]		NERC-TOTAL	
Type	**Thousands of MW**	**% of Total**	**Thousands of MW**	**% of Total**	**Thousands of MW**	**% of Total**	**Thousands of MW**	**% of Total**
Nuclear	25.3[b]	31.9	4.4	33.3	0.0	0.0	29.7[b]	32.0
Coal	22.7	28.6	3.3	25.5	0.0	0.0	26.0	28.0
Hydro	2.5	3.2	4.7	35.8	0.0	0.0	7.2	7.8
Oil/Gas	9.5	12.0	0.5	3.6	0.3	59.2	10.3	11.1
Pumped Storage	2.4	3.0	0.0	0.0	0.0	0.0	2.4	2.6
Other (Utility)	5.4	6.9	0.0	0.0	0.2[c]	40.8	5.6	6.0
Non-Utility Generators[d]	11.5	14.4	0.2	1.8	0.0	0.0	11.7	12.5
Additions	**79.3**	**100**	**13.1**	**100**	**0.5**	**100**	**92.9**	**100**
Retirements	**10.4**		**0.2**		**0.0**		**10.6**	
Conversions (Oil-to-Coal)	**1.2**		**0.5**		**0.0**		**1.7**	

a) Northern portion of Baja California, Mexico only.
b) Perry 2, WNP1, and WNP3 nuclear units are not included.
c) All geothermal capacity.
d) Of the total, 3,091 MW (U.S.) and 240 MW (Canada) are reported to be cogeneration capacity.

TABLE 30

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

TOTAL GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

					PROJECTED						1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	3230	1394	59	1412	2115	760	60	200	380	240	9850
ERCOT	1450	929	2420	1690	936	948	1080	1778	1000	2305	14536
MAAC	39	444	654	1779	460	1195	116	145	180	435	5447
MAIN	3180	1106	10	0	22	10	0	72	8	15	4423
CMNWLTH EDISON	2210	1090	0	0	0	0	0	0	0	0	3300
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	950	0	0	0	0	0	0	0	0	0	950
WIS-UPPER MICH	20	16	10	0	22	10	0	72	8	15	173
MAPP	858	0	0	0	0	56	0	0	0	400	1314
NPCC	3317	159	99	698	286	99	30	275	475	1246	6684
NEW YORK	2163	148	86	250	83	95	30	65	415	1230	4565
NEW ENGLAND	1154	11	13	448	203	4	0	210	50	16	2119
SERC	3770	1651	2817	1795	1294	1606	661	2026	2405	1640	19665
FLORIDA	965	580	53	0	20	0	0	503	1376	428	3925
SOUTHERN	1904	1071	1594	200	716	70	120	50	453	0	6178
TVA	0	0	1170	1170	0	0	0	1212	0	1212	4764
VACAR	901	0	0	425	558	1536	541	261	576	0	4798
SPP	0	117	0	0	300	125	75	772	32	960	2381
SOUTHEAST	0	17	0	0	0	0	0	0	0	540	557
WEST CENTRAL	0	100	0	0	300	0	0	0	0	170	570
NORTHERN	0	0	0	0	0	125	75	772	32	250	1254
WSCC	3168	2636	1500	1150	872	525	714	1635	1526	1253	14979
NW POOL	73	189	24	15	6	100	294	581	6	65	1353
ROCKY MT-AREA	154	66	101	146	10	0	0	485	350	0	1312
ARIZ-N.MEX	1278	30	376	0	350	0	0	113	10	25	2182
CALIF-SO.NEV	1663	2351	999	989	506	425	420	456	1160	1163	10132
TOTAL(U.S.)	19012	8436	7559	8524	6285	5324	2736	6903	6006	8494	79279
NERC-CANADA											
MAPP	54	108	108	240	880	360	0	92	276	0	2118
NPCC	877	881	1861	30	1061	1859	1508	461	381	60	8979
NEW BRUNSWICK	0	0	0	0	0	0	335	0	0	0	335
NOVA SCOTIA	0	0	0	0	150	0	0	150	300	0	600
ONTARIO	877	881	881	30	911	911	225	311	81	60[a]	5168
QUEBEC	0	0	980	0	0	948	948	0	0	0	2876
WSCC	0	0	386	366	386	0	0	360	360	162	2020
TOTAL(CANADA)	931	989	2355	636	2327	2219	1508	913	1017	222	13117
NERC-MEXICO											
WSCC	100	0	145	0	145	0	50	50	0	0	490
TOTAL(MEXICO)	100	0	145	0	145	0	50	50	0	0	490
NERC-TOTAL	20043	9425	10059	9160	8757	7543	4294	7866	7023	8716	92886

a) Includes 30 MW of NUG capacity scheduled for January 1997 service.

TABLE 31
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NUCLEAR GENERATING UNIT ADDITIONS (UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

		PROJECTED									1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	3092	0	0	0	0	0	0	0	0	0	3092
ERCOT	1250	0	2400	1150	0	0	0	0	0	0	4800
MAAC	0	0	0	1055	0	0	0	0	0	0	1055
MAIN	3160	1090	0	0	0	0	0	0	0	0	4250
CMNWLTH EDISON	2210	1090	0	0	0	0	0	0	0	0	3300
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	950	0	0	0	0	0	0	0	0	0	950
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	3039	0	0	0	0	0	0	0	0	0	3039
NEW YORK	1889	0	0	0	0	0	0	0	0	0	1889
NEW ENGLAND	1150	0	0	0	0	0	0	0	0	0	1150
SERC	1971	1071	1170	1170	0	0	0	1212	0	1212	7806
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	1071	1071	0	0	0	0	0	0	0	0	2142
TVA	0	0	1170	1170	0	0	0	1212	0	1212	4764
VACAR	900	0	0	0	0	0	0	0	0	0	900
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	1270	0	0	0	0	0	0	0	0	0	1270
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	1270	0	0	0	0	0	0	0	0	0	1270
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	13782	2161	3570	3375	0	0	0	1212	0	1212	25312
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	837	881	881	0	881	881	0	0	0	0	4361
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	837	881	881	0	881	881	0	0	0	0	4361
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	837	881	881	0	881	881	0	0	0	0	4361
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	14619	3042	4451	3375	881	881	0	1212	0	1212	29673

TABLE 32
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

COAL-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

	PROJECTED										1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	0	1300	0	0	1795	600	0	0	0	0	3695
ERCOT	0	344	0	0	750	498	750	1648	0	1525	5515
MAAC	0	0	0	0	0	640	0	0	0	0	640
MAIN	0	0	0	0	0	0	0	60	0	0	60
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	60	0	0	60
MAPP	851	0	0	0	0	0	0	0	0	400	1251
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	1798	550	1474	0	666	690	0	0	375	0	5553
FLORIDA	965	550	0	0	0	0	0	0	0	0	1515
SOUTHERN	833	0	1474	0	666	0	0	0	375	0	3348
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	690	0	0	0	0	690
SPP	0	0	0	0	300	75	0	740	0	680	1795
SOUTHEAST	0	0	0	0	0	0	0	0	0	540	540
WEST CENTRAL	0	0	0	0	300	0	0	0	0	0	300
NORTHERN	0	0	0	0	0	75	0	740	0	140	955
WSCC	864	0	360	0	350	0	0	535	1225	800	4134
NW POOL	0	0	0	0	0	0	0	50	0	50	100
ROCKY MT-AREA	64	0	0	0	0	0	0	485	350	0	899
ARIZ-N.MEX	0	0	360	0	350	0	0	0	0	0	710
CALIF-SO.NEV	800	0	0	0	0	0	0	0	875	750	2425
TOTAL(U.S.)	3513	2194	1834	0	3861	2503	750	2983	1600	3405	22643
NERC-CANADA											
MAPP	0	0	0	0	280	0	0	0	276	0	556
NPCC	0	0	0	0	150	0	335	150	300	0	935
NEW BRUNSWICK	0	0	0	0	0	0	335	0	0	0	335
NOVA SCOTIA	0	0	0	0	150	0	0	150	300	0	600
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	386	366	386	0	0	360	360	0	1858
TOTAL(CANADA)	0	0	386	366	816	0	335	510	936	0	3349
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	3513	2194	2220	366	4677	2503	1085	3493	2536	3405	25992

TABLE 33
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS (UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

	PROJECTED										1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	3	0	0	0	0	0	0	0	0	3
MAIN	0	6	0	0	0	0	0	0	0	0	6
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	6	0	0	0	0	0	0	0	0	6
MAPP	7	0	0	0	0	6	0	0	0	0	13
NPCC	4	11	25	52	78	4	0	0	320	16	510
NEW YORK	0	0	12	24	53	0	0	0	320	0	409
NEW ENGLAND	4	11	13	28	25	4	0	0	0	16	101
SERC	0	0	0	50	0	70	0	0	78	0	198
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	50	0	70	0	0	78	0	198
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	17	0	0	0	0	0	0	0	0	17
SOUTHEAST	0	17	0	0	0	0	0	0	0	0	17
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	22	281	55	219	47	221	294	631	11	0	1781
NW POOL	6	5	0	8	0	79	288	516	6	0	908
ROCKY MT-AREA	0	0	21	0	0	0	0	0	0	0	21
ARIZ-N.MEX	8	30	14	0	0	0	0	100	0	0	152
CALIF-SO.NEV	8	246	20	211	47	142	6	15	5	0	700
TOTAL(U.S.)	33	318	80	321	125	301	294	631	409	16	2528
NERC-CANADA											
MAPP	0	0	0	240	600	360	0	92	0	0	1292
NPCC	0	0	980	0	0	948	1143	281	51	0	3403
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	195	281	51	0	527
QUEBEC	0	0	980	0	0	948	948	0	0	0	2876
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	980	240	600	1308	1143	373	51	0	4695
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	33	318	1060	561	725	1609	1437	1004	460	16	7223

TABLE 34
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

PUMPED STORAGE GENERATING UNIT ADDITIONS (UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

	PROJECTED										1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	1000	1000
NEW YORK	0	0	0	0	0	0	0	0	0	1000	1000
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	300	500	500	0	0	0	0	1300
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	150	0	0	0	0	0	0	150
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	150	500	500	0	0	0	0	1150
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	115	0	0	0	115
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	115	0	0	0	115
TOTAL(U.S.)	0	0	0	300	500	500	115	0	0	1000	2415
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	0	0	0	300	500	500	115	0	0	1000	2415

TABLE 35
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

OIL-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

					PROJECTED						1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	0	80	60	200	200	240	780
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	13	0	0	0	0	0	0	0	100	113
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	50	0	0	0	0	50
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	50	500	338	375	1263
FLORIDA	0	0	0	0	0	0	0	450	338	375	1163
SOUTHERN	0	0	0	0	0	0	50	50	0	0	100
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	220	220
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	170	170
NORTHERN	0	0	0	0	0	0	0	0	0	50	50
WSCC	[illegible]	0	0	0	0	0	70	70	0	0	154
NW POOL	14	0	0	0	0	0	0	0	0	0	14
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	70	70	0	0	140
TOTAL(U.S.)	14	13	0	0	0	130	180	770	538	935	2580
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	40	0	0	0	0	0	0	0	0	0	40
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	40	0	0	0	0	0	0	0	0	0	40
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	40	0	0	0	0	0	0	0	0	0	40
NERC-MEXICO											
WSCC	0	0	145	0	145	0	0	0	0	0	290
TOTAL(MEXICO)	0	0	145	0	145	0	0	0	0	0	290
NERC-TOTAL	54	13	145	0	145	130	180	770	538	935	2910

TABLE 36
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GAS-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

	PROJECTED										1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	15	0	0	0	0	0	0	0	0	0	15
ERCOT	200	585	0	540	150	450	330	130	350	130	2865
MAAC	0	0	0	0	200	0	0	0	0	200	400
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	210	178	0	0	0	60	170	618
NEW YORK	0	0	0	0	0	0	0	0	0	170	170
NEW ENGLAND	0	0	0	210	178	0	0	0	60	0	448
SERC	0	30	173	275	128	0	218	53	1186	53	2116
FLORIDA	0	30	53	0	20	0	0	53	1038	53	1247
SOUTHERN	0	0	120	0	50	0	70	0	0	0	240
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	275	58	0	148	0	148	0	629
SPP	0	100	0	0	0	50	75	32	32	60	349
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	100	0	0	0	0	0	0	0	0	100
NORTHERN	0	0	0	0	0	50	75	32	32	60	249
WSCC	37	0	0	259	210	0	0	0	0	50	556
NW POOL	12	0	0	0	0	0	0	0	0	0	12
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	25	0	0	259	210	0	0	0	0	50	544
TOTAL(U.S.)	252	715	173	1284	866	500	623	215	1628	663	6919
NERC-CANADA											
MAPP	54	108	108	0	0	0	0	0	0	0	270
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	162	162
TOTAL(CANADA)	54	108	108	0	0	0	0	0	0	162	432
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	306	823	281	1284	866	500	623	215	1628	825	7351

TABLE 37
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

OIL- AND GAS-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

	PROJECTED										1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	15	0	0	0	0	80	60	200	200	240	795
ERCOT	200	585	0	540	150	450	330	130	350	130	2865
MAAC	0	13	0	0	200	0	0	0	0	300	513
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	50	0	0	0	0	50
NPCC	0	0	0	210	178	0	0	0	60	170	618
NEW YORK	0	0	0	0	0	0	0	0	0	170	170
NEW ENGLAND	0	0	0	210	178	0	0	0	60	0	448
SERC	0	30	173	275	128	0	268	553	1524	428	3379
FLORIDA	0	30	53	0	20	0	0	503	1376	428	2410
SOUTHERN	0	0	120	0	50	0	120	50	0	0	340
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	275	58	0	148	0	148	0	629
SPP	0	100	0	0	0	50	75	32	32	280	569
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	100	0	0	0	0	0	0	0	170	270
NORTHERN	0	0	0	0	0	50	75	32	32	110	299
WSCC	51	0	0	259	210	0	70	70	0	50	710
NW POOL	26	0	0	0	0	0	0	0	0	0	26
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	25	0	0	259	210	0	70	70	0	50	684
TOTAL(U.S.)	266	728	173	1284	866	630	803	985	2166	1598	9499
NERC-CANADA											
MAPP	54	108	108	0	0	0	0	0	0	0	270
NPCC	40	0	0	0	0	0	0	0	0	0	40
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	40	0	0	0	0	0	0	0	0	0	40
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	162	162
TOTAL(CANADA)	94	108	108	0	0	0	0	0	0	162	472
NERC-MEXICO											
WSCC	0	0	145	0	145	0	0	0	0	0	290
TOTAL(MEXICO)	0	0	145	0	145	0	0	0	0	0	290
NERC-TOTAL	360	836	426	1284	1011	630	803	985	2166	1760	10261

TABLE 38

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

OTHER[a] GENERATING UNIT ADDITIONS (UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

				PROJECTED							
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1987-1996 TOTAL
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	20	0	36	0	0	0	650	650	1356
MAAC	0	0	0	0	100	85	85	125	145	125	665
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	346	393	261	428	0	1428
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	346	393	261	428	0	1428
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	21	210	142	325	50	220	150	313	200	325	1956
NW POOL	0	43	0	0	0	15	0	15	0	15	88
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	2	0	0	0	0	8	0	10	20
CALIF-SO.NEV	21	167	140	325	50	205	150	290	200	300	1848
TOTAL(U.S.)	21	210	162	325	186	651	628	699	1423	1100	5405
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	100	0	0	0	0	0	50	50	0	0	200
TOTAL(MEXICO)	100	0	0	0	0	0	50	50	0	0	200
NERC-TOTAL	121	210	162	325	186	651	678	749	1423	1100	5605

a) Includes utility owned capacity other than nuclear, coal-, oil-, and gas-fired, conventional hydro, and pumped storage generating units.

TABLE 39
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NON-UTILITY GENERATOR(NUG)[a] ADDITIONS - SUMMER - MW
(January 1, 1987 - December 31, 1996)

	PROJECTED										1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	123	94	59	1412	320	80	0	0	180	0	2268
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	39	428	654	724	160	470	31	20	35	10	2571
MAIN	20	10	10	0	22	10	0	12	8	15	107
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	20	10	10	0	22	10	0	12	8	15	107
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	274	148	74	436	30	95	30	275	95	60	1517
NEW YORK	274	148	74	226	30	95	30	65	95	60	1097
NEW ENGLAND	0	0	0	210	0	0	0	210	0	0	420
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	940	2145	943	347	215	84	85	86	90	78	5013
NW POOL	41	141	24	7	6	6	6	0	0	0	231
ROCKY MT-AREA	90	66	80	146	10	0	0	0	0	0	392
ARIZ-N.MEX	0	0	0	0	0	0	0	5	10	15	30
CALIF-SO.NEV	809	1938	839	194	199	78	79	81	80	63	4360
TOTAL(U.S.)	1396	2825	1740	2919	747	739	146	393	408	163	11476
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	30	30	30	30	30	30	60	240
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	30	30	30	30	30	30	60[b]	240
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	30	30	30	30	30	30	60	240
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1396	2825	1740	2949	777	769	176	423	438	223	11716

a) Non-utility generators (NUGs) are facilities for generating electricity which are not owned exclusively by an electric utility and which operate connected to an electric utility system. The data reported on NUGs is limited to only those non-utility generators which are projected to sell electrical energy or capacity, or both, to electric utilities and which are reported by utilities as generating unit additions in Item 2B of each Regional Reliability Council's IE-411 report. NUGs treated by utilities as reductions in load or as capacity imports are excluded.

b) Includes 30 MW of NUG capacity scheduled for January 1997 service.

TABLE 40
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT RETIREMENTS (UTILITY AND NON-UTILITY OWNED) - SUMMER - MW
(January 1, 1987 - December 31, 1996)

					PROJECTED						1987-1996
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
NERC-U.S.											
ECAR	0	0	3	156	60	57	124	0	92	0	492
ERCOT	0	0	0	260	306	190	327	368	405	343	2199
MAAC	63	0	0	607	0	126	169	41	0	0	1006
MAIN	0	14	31	0	0	0	0	0	100	187	332
CMNWLTH EDISON	0	0	0	0	0	0	0	0	100	187	287
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	14	31	0	0	0	0	0	0	0	45
MAPP	153	14	0	0	8	18	0	0	4	0	197
NPCC	17	44	51	0	34	220	201	138	156	39	900
NEW YORK	0	0	0	0	0	0	0	0	0	39	39
NEW ENGLAND	17	44	51	0	34	220	201	138	156	0	861
SERC	0	45	54	136	171	0	42	33	7	463	951
FLORIDA	0	0	0	8	0	0	42	14	7	22	93
SOUTHERN	0	45	54	128	171	0	0	19	0	441	858
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	25	20	0	203	372	90	446	447	125	157	1885
SOUTHEAST	25	0	0	199	372	0	406	332	125	0	1459
WEST CENTRAL	0	0	0	4	0	59	40	115	0	157	375
NORTHERN	0	20	0	0	0	31	0	0	0	0	51
WSCC	444	0	180	81	461	403	840	8	8	0	2425
NW POOL	1	0	0	0	0	9	840	0	0	0	850
ROCKY MT-AREA	0	0	0	0	230	0	0	8	8	0	246
ARIZ-N.MEX	0	0	0	36	0	0	0	0	0	0	36
CALIF-SO.NEV	443	0	180	45	231	394	0	0	0	0	1293
TOTAL(U.S.)	702	137	319	1443	1412	1104	2149	1035	897	1189	10387
NERC-CANADA											
MAPP	0	0	0	0	61	0	0	0	0	0	61
NPCC	0	9	0	0	0	0	24	0	0	0	33
NEW BRUNSWICK	0	9	0	0	0	0	24	0	0	0	33
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	44	106	3	0	0	0	0	0	153
TOTAL(CANADA)	0	9	44	106	64	0	24	0	0	0	247
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	702	146	363	1549	1476	1104	2173	1035	897	1189	10634

TRANSMISSION

The planned high voltage (230 kV and above, alternating current (ac) and direct current (dc) voltages) transmission line additions in NERC over the 1987-1996 period are estimated to total about 19,800 circuit miles. Figure 11 compares this current 1987 transmission forecast to the 1986, 1985, and 1984 ten-year forecasts. As in the last three forecasts, most of the transmission lines projected to be built in the next ten years will be 345 kV in NERC-U.S. and 230 kV in NERC-CANADA. In NERC-MEXICO, only 230 kV transmission lines are planned over the 1987-1996 forecast period.

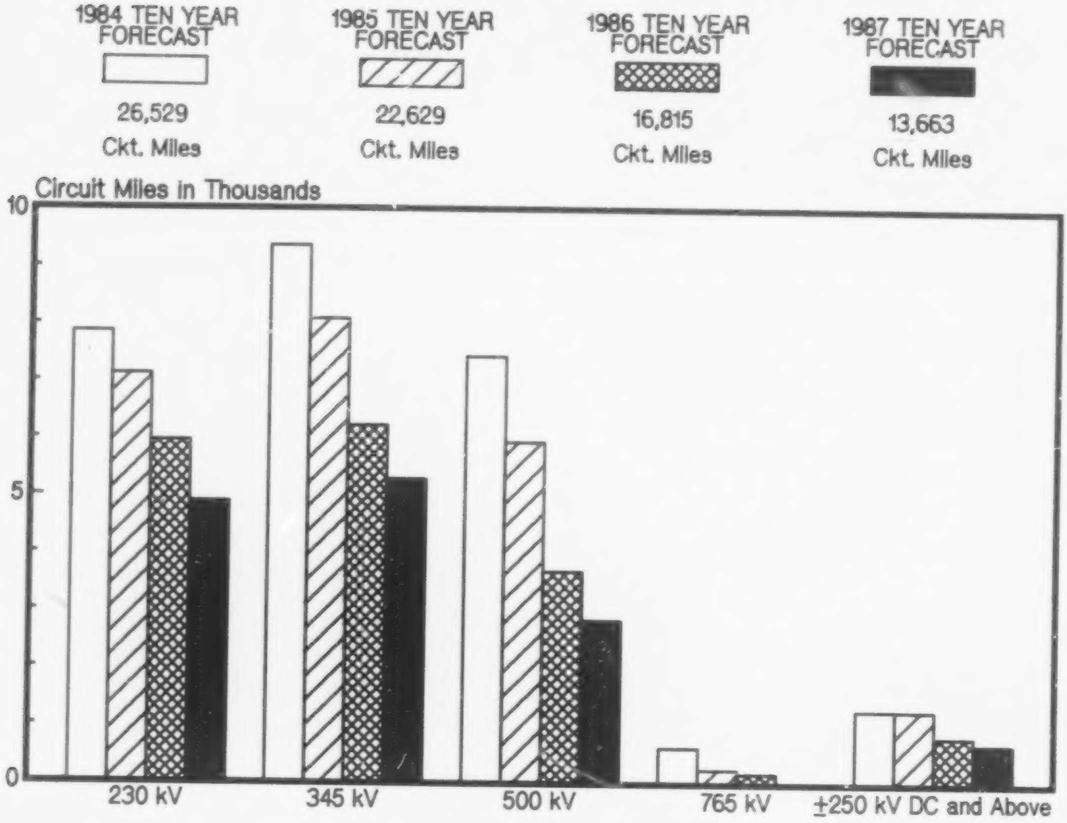
As of December 31, 1986, the transmission networks in NERC, as shown in Table 41, were comprised of over 182,000 circuit miles of high voltage (230 kV and above) lines. The planned transmission additions by voltage for the NERC regions and subregions over the next two 5-year periods (1987-1991 and 1992-1996) are shown in Tables 42 and 43, respectively.

By the end of December 1996, the NERC high voltage (230 kV and above) transmission systems will approach 202,500 circuit miles. A breakdown of the 1996 total by voltage class and by NERC regions and subregions is shown in Table 44. Finally, Table 45 summarizes the NERC existing transmission lines and planned transmission line additions over the 1986 to 1996 period.

The transmission data as included in Figure 11 and Tables 41 through 45 were reported directly to NERC.

Figure 11

PLANNED TRANSMISSION ADDITIONS
NERC–U.S.



NERC–CANADA

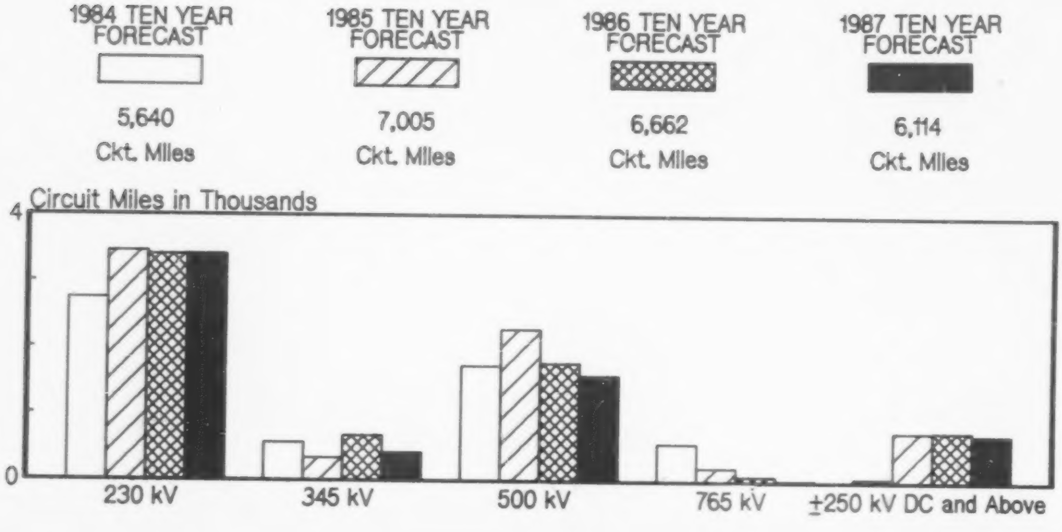


TABLE 41
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

EXISTING TRANSMISSION (230-kV & Above) SYSTEM - Circuit Miles
(12/31/86)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	1101	11781	852	2022	15756	0	0	0	0	0	15756
ERCOT	0	6817	0	0	6817	0	0	0	0	0	6817
MAAC	4660	170	1660	0	6490	0	0	0	0	0	6490
MAIN	262	5072	0	90	5424	0	0	0	0	0	5424
CMNWLTH EDISON	0	2337	0	90	2447	0	0	0	0	0	2447
EAST MISSOURI	90	974	0	0	1064	0	0	0	0	0	1064
S CENT ILLINOIS	49	789	0	0	838	0	0	0	0	0	838
WIS-UPPER MICH	123	952	0	0	1075	0	0	0	0	0	1075
MAPP	7053	5046	642	0	12741	465	436	0	0	901	13642
NPCC	1534	4033	5	316	5888	0	0	59	0	59	5947
NEW YORK	1090	2350	5	316	3761	0	0	0	0	0	3761
NEW ENGLAND	444	1683	0	0	2127	0	0	59	0	59	2186
SERC	19613	2	6990	0	26605	0	0	0	0	0	26605
FLORIDA	4545	0	1145	0	5690	0	0	0	0	0	5690
SOUTHERN	6437	0	1735	0	8172	0	0	0	0	0	8172
TVA	30	2	2259	0	2291	0	0	0	0	0	2291
VACAR	8601	0	1851	0	10452	0	0	0	0	0	10452
SPP	3990	4533	2079	0	10602	0	0	0	0	0	10602
SOUTHEAST	2036	98	1977	0	4111	0	0	0	0	0	4111
WEST CENTRAL	1376	2270	47	0	3693	0	0	0	0	0	3693
NORTHERN	578	2165	55	0	2798	0	0	0	0	0	2798
WSCC	30783	8705[a]	10814	0	50302	0	0	0	1333	1333	51635
NW POOL	12655	3906	5573	0	22134	0	0	0	264	264	22398
ROCKY MT-AREA	3791	640	0	0	4431	0	0	0	0	0	4431
ARIZ-N.MEX	2256	3663	1626	0	7545	0	0	0	0	0	7545
CALIF-SO.NEV	12081	496	3615	0	16192	0	0	0	1069	1069	17261
TOTAL(U.S.)	68996	46159	23042	2428	140625	465	436	59	1333	2293	142918
NERC-CANADA											
MAPP	4113	924	130	0	5167	0	0	1139	0	1139	6306
NPCC	11691	4710	1388	6372	24161	0	0	48	0	48	24209
NEW BRUNSWICK	328	601	0	0	929	0	0	0	0	0	929
NOVA SCOTIA	715	107	0	0	822	0	0	0	0	0	822
ONTARIO	8270	4	1388	0	9662	0	0	0	0	0	9662
QUEBEC	2378	3998[b]	0	6372[c]	12748	0	0	48	0	48	12796
WSCC	5082	264[a]	3462	0	8808	47	0	0	0	47	8855
TOTAL(CANADA)	20886	5898	4980	6372	38136	47	0	1187	0	1234	39370
NERC-MEXICO											
WSCC	400	0	0	0	400	0	0	0	0	0	400
TOTAL(MEXICO)	400	0	0	0	400	0	0	0	0	0	400
NERC-TOTAL	90282	52057	28022	8800	179161	512	436	1246	1333	3527	182688

a) Where appropriate, 287 kV and 360 kV lines are included in the 345 kV category.
b) Includes 315 kV.
c) Includes 735 kV.

TABLE 42

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

PLANNED TRANSMISSION SYSTEM ADDITIONS BY VOLTAGE (230-kV & Above)-Circuit Miles
(1987-1991)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	22	48	0	0	70	0	0	0	0	0	70
ERCOT	0	656	0	0	656	0	0	0	0	0	656
MAAC	268	0	63	0	331	0	0	0	0	0	331
MAIN	0	176	0	0	176	0	0	0	0	0	176
CMNWLTH EDISON	0	107	0	0	107	0	0	0	0	0	107
EAST MISSOURI	0	9	0	0	9	0	0	0	0	0	9
S CENT ILLINOIS	0	59	0	0	59	0	0	0	0	0	59
WIS-UPPER MICH	0	1	0	0	1	0	0	0	0	0	1
MAPP	136	131	0	0	267	0	0	0	0	0	267
NPCC	0	469	0	0	469	0	0	133	0	133	602
NEW YORK	0	334	0	0	334	0	0	0	0	0	334
NEW ENGLAND	0	135	0	0	135	0	0	133	0	133	268
SERC	1019	0	503	0	1522	0	0	0	0	0	1522
FLORIDA	133	0	98	0	231	0	0	0	0	0	231
SOUTHERN	396	0	90	0	486	0	0	0	0	0	486
TVA	0	0	141	0	141	0	0	0	0	0	141
VACAR	490	0	174	0	664	0	0	0	0	0	664
SPP	797	327	25	0	1149	0	0	0	0	0	1149
SOUTHEAST	522	0	25	0	547	0	0	0	0	0	547
WEST CENTRAL	231	130	0	0	361	0	0	0	0	0	361
NORTHERN	44	197	0	0	241	0	0	0	0	0	241
WSCC	1590	1136[a]	1062	0	3788	0	0	0	0	0	3788
NW POOL	205	190	249	0	644	0	0	0	0	0	644
ROCKY MT-AREA	570	378	0	0	948	0	0	0	0	0	948
ARIZ-N.MEX	610	500	0	0	1110	0	0	0	0	0	1110
CALIF-SO.NEV	205	68	813	0	1086	0	0	0	0	0	1086
TOTAL(U.S.)	3832	2943	1653	0	8428	0	0	133	0	133	8561
NERC-CANADA											
MAPP	880	0	0	0	880	0	0	0	0	0	880
NPCC	169	180	558	12	919	0	0	700	0	700	1619
NEW BRUNSWICK	0	55	0	0	55	0	0	0	0	0	55
NOVA SCOTIA	10	115	0	0	125	0	0	0	0	0	125
ONTARIO	159	0	558	0	717	0	0	0	0	0	717
QUEBEC	0	10[b]	0	12[c]	22	0	0	700	0	700	722
WSCC	981	0	96	0	1077	0	0	0	0	0	1077
TOTAL(CANADA)	2030	180	654	12	2876	0	0	700	0	700	3576
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	5862	3123	2307	12	11304	0	0	833	0	833	12137

a) Where appropriate, 287 kV and 360 kV lines are included in the 345 kV category.
b) Includes 315 kV.
c) Includes 735 kV.

TABLE 43
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

PLANNED TRANSMISSION SYSTEM ADDITIONS BY VOLTAGE (230-kV & Above)-Circuit Miles
(1992-1996)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	12	270	106	0	388	0	0	0	0	0	388
ERCOT	0	649	0	0	649	0	0	0	0	0	649
MAAC	29	0	95	0	124	0	0	0	0	0	124
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	52	348	225	0	625	0	0	0	0	0	625
NPCC	0	160	0	0	160	0	0	92	0	92	252
NEW YORK	0	54	0	0	54	0	0	0	0	0	54
NEW ENGLAND	0	106	0	0	106	0	0	92	0	92	198
SERC	506	0	261	0	767	0	0	0	0	0	767
FLORIDA	75	0	146	0	221	0	0	0	0	0	221
SOUTHERN	208	0	79	0	287	0	0	0	0	0	287
TVA	0	0	36	0	36	0	0	0	0	0	36
VACAR	223	0	0	0	223	0	0	0	0	0	223
SPP	187	243	284	0	714	0	0	0	0	0	714
SOUTHEAST	187	0	284	0	471	0	0	0	0	0	471
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	243	0	0	243	0	0	0	0	0	243
WSCC	270	662[a]	196	0	1128	0	0	0	455	455	1583
NW POOL	248	31	22	0	301	0	0	0	0	0	301
ROCKY MT-AREA	-167	390	0	0	223	0	0	0	0	0	223
ARIZ-N.MEX	85	140	174	0	399	0	0	0	240	240	639
CALIF-SO.NEV	104	101	0	0	205	0	0	0	215	215	420
TOTAL(U.S.)	1056	2332	1167	0	4555	0	0	92	455	547	5102
NERC-CANADA											
MAPP	173	0	0	0	173	0	0	0	0	0	173
NPCC	439	235	495	0	1169	0	0	0	0	0	1169
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	235	0	0	235	0	0	0	0	0	235
ONTARIO	439	0	495	0	934	0	0	0	0	0	934
QUEBEC[b]	0	0	0	0	0	0	0	0	0	0	0
WSCC	765	0	431	0	1196	0	0	0	0	0	1196
TOTAL(CANADA)	1377	235	926	0	2538	0	0	0	0	0	2538
NERC-MEXICO											
WSCC	31	0	0	0	31	0	0	0	0	0	31
TOTAL(MEXICO)	31	0	0	0	31	0	0	0	0	0	31
NERC-TOTAL	2464	2567	2093	0	7124	0	0	92	455	547	7671

a) Where appropriate, 287 kV and 360 kV lines are included in the 345 kV category.
b) Projections beyond 1991 were not reported.

TABLE 44
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

PLANNED TRANSMISSION (230-kV & Above) SYSTEM-Circuit Miles
(12/31/96)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	1135	12099	958	2022	16214	0	0	0	0	0	16214
ERCOT	0	8122	0	0	8122	0	0	0	0	0	8122
MAAC	4957	170	1818	0	6945	0	0	0	0	0	6945
MAIN	262	5248	0	90	5600	0	0	0	0	0	5600
CMNWLTH EDISON	0	2464	0	90	2554	0	0	0	0	0	2554
EAST MISSOURI	90	983	0	0	1073	0	0	0	0	0	1073
S CENT ILLINOIS	49	848	0	0	897	0	0	0	0	0	897
WIS-UPPER MICH	123	953	0	0	1076	0	0	0	0	0	1076
MAPP	7241	5525	867	0	13633	465	436	0	0	901	14534
NPCC	1534	4662	5	316	6517	0	0	284	0	284	6801
NEW YORK	1090	2738	5	316	4149	0	0	0	0	0	4149
NEW ENGLAND	444	1924	0	0	2368	0	0	284	0	284	2652
SERC	21138	2	7754	0	28894	0	0	0	0	0	28894
FLORIDA	4753	0	1389	0	6142	0	0	0	0	0	6142
SOUTHERN	7041	0	1904	0	8945	0	0	0	0	0	8945
TVA	30	2	2436	0	2468	0	0	0	0	0	2468
VACAR	9314	0	2025	0	11339	0	0	0	0	0	11339
SPP	4974	5103	2388	0	12465	0	0	0	0	0	12465
SOUTHEAST	2745	98	2286	0	5129	0	0	0	0	0	5129
WEST CENTRAL	1607	2400	47	0	4054	0	0	0	0	0	4054
NORTHERN	622	2605	55	0	3282	0	0	0	0	0	3282
WSCC	32643	10503[a]	12072	0	55218	0	0	0	1788	1788	57006
NW POOL	13108	4127	5844	0	23079	0	0	0	264	264	23343
ROCKY MT-AREA	4194	1408	0	0	5602	0	0	0	0	0	5602
ARIZ-N.MEX	2951	4303	1800	0	9054	0	0	0	240	240	9294
CALIF-SO.NEV	12390	665	4428	0	17483	0	0	0	1284	1284	18767
TOTAL(U.S.)	73884	51434	25862	2428	153608	465	436	284	1788	2973	156581
NERC-CANADA											
MAPP	5166	924	130	0	6220	0	0	1139	0	1139	7359
NPCC	12299	5125	2441	6384	26249	0	0	748	0	748	26997
NEW BRUNSWICK	328	656	0	0	984	0	0	0	0	0	984
NOVA SCOTIA	725	457	0	0	1182	0	0	0	0	0	1182
ONTARIO	8868	4	2441	0	11313	0	0	0	0	0	11313
QUEBEC[b]	2378	4008[c]	0	6384[d]	12770	0	0	748	0	748	13518
WSCC	6828	264[a]	3989	0	11081	47	0	0	0	47	11128
TOTAL(CANADA)	24293	6313	6560	6384	43550	47	0	1887	0	1934	45484
NERC-MEXICO											
WSCC	431	0	0	0	431	0	0	0	0	0	431
TOTAL(MEXICO)	431	0	0	0	431	0	0	0	0	0	431
NERC-TOTAL	98608	57747	32422	8812	197589	512	436	2171	1788	4907	202496

a) Where appropriate, 287 kV and 360 kV lines are included in the 345 kV category.
b) Projections beyond 1991 were not reported.
c) Includes 315 kV.
d) Includes 735 kV.

TABLE 45
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

EXISTING AND PLANNED TRANSMISSION (230-kV & Above) SYSTEM-Circuit Miles
(1986-1996)

	EXISTING 12/31/86	ADDITIONS 1987-91	TOTAL 12/31/91	ADDITIONS 1992-96	TOTAL 12/31/96
NERC-U.S.					
ECAR	15756	70	15826	388	16214
ERCOT	6817	656	7473	649	8122
MAAC	6490	331	6821	124	6945
MAIN	5424	176	5600	0	5600
CMNWLTH EDISON	2447	107	2554	0	2554
EAST MISSOURI	1064	9	1073	0	1073
S CENT ILLINOIS	838	59	897	0	897
WIS-UPPER MICH	1075	1	1076	0	1076
MAPP	13642	267	13909	625	14534
NPCC	5947	602	6549	252	6801
NEW YORK	3761	334	4095	54	4149
NEW ENGLAND	2186	268	2454	198	2652
SERC	26605	1522	28127	767	28894
FLORIDA	5690	231	5921	221	6142
SOUTHERN	8172	486	8658	287	8945
TVA	2291	141	2432	36	2468
VACAR	10452	664	11116	223	11339
SPP	10602	1149	11751	714	12465
SOUTHEAST	4111	547	4658	471	5129
WEST CENTRAL	3693	361	4054	0	4054
NORTHERN	2798	241	3039	243	3282
WSCC	51635	3788	55423	1583	57006
NW POOL	22398	644	23042	301	23343
ROCKY MT-AREA	4431	948	5379	223	5602
ARIZ-N.MEX	7545	1110	8655	639	9294
CALIF-SO.NEV	17261	1086	18347	420	18767
TOTAL(U.S.)	142918	8561	151479	5102	156581
NERC-CANADA					
MAPP	6306	880	7186	173	7359
NPCC	24209	1619	25828	1169	26997
NEW BRUNSWICK	929	55	984	0	984
NOVA SCOTIA	822	125	947	235	1182
ONTARIO	9662	717	10379	934	11313
QUEBEC	12796	722	13518	0[a]	13518
WSCC	8855	1077	9932	1196	11128
TOTAL(CANADA)	39370	3576	42946	2538	45484
NERC-MEXICO					
WSCC	400	0	400	31	431
TOTAL(MEXICO)	400	0	400	31	431
NERC-TOTAL	182688	12137	194825	7671	202496

a) Projections beyond 1991 were not reported.

APPENDICES

APPENDICES

A. INSTALLED GENERATING CAPACITY

B. ELECTRICAL ENERGY PRODUCTION

C. FOSSIL FUEL REQUIREMENTS FOR COAL, OIL, AND NATURAL GAS

D. GENERATING UNIT ADDITIONS

E. NUCLEAR GENERATING UNIT ADDITIONS

F. COAL-FIRED GENERATING UNIT ADDITIONS

G. HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS

H. PUMPED STORAGE GENERATING UNIT ADDITIONS

I. OIL-FIRED GENERATING UNIT ADDITIONS

J. GAS-FIRED GENERATING UNIT ADDITIONS

K. OTHER (UTILITY) GENERATING UNIT ADDITIONS

L. NON-UTILITY GENERATOR (NUG) ADDITIONS

M. JOINTLY-OWNED GENERATING UNIT ADDITIONS

N. GENERATING UNIT RETIREMENTS

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED COAL-FIRED GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	80383	80423	80365	81665	81673	84071	84030	84855	84885	84896	85109
ERCOT	11834	13037	13447	13552	13587	14337	14835	15585	17233	17883	18733
MAAC	17272	17216	17216	17216	17216	17066	17706	17706	17706	17706	17706
MAIN	27463	27321	27432	27610	27590	27675	27795	27915	27915	27975	27818
CMNWLTH EDISON	6940	6940	6940	6940	6940	6940	6940	6940	6940	6940	6840
EAST MISSOURI	5588	5588	5588	5588	5588	5588	5588	5588	5588	5588	5588
S CENT ILLINOIS	8032	7926	8037	8037	8037	8037	8037	8037	8037	8037	7980
WIS-UPPER MICH	6903	6867	6867	7045	7025	7110	7230	7350	7350	7410	7410
MAPP	18134	18556	19572	19587	19587	19614	19614	19807	19807	19807	20207
NPCC	6790	7002	7539	7539	7539	7539	7539	7539	7539	7539	7539
NEW YORK[a]	4018	4248	4785	4785	4785	4785	4785	4785	4785	4785	4785
NEW ENGLAND	2772	2754	2754	2754	2754	2754	2754	2754	2754	2754	2754
SERC	65079	66532	66947	68997	68856	69556	70287	70287	70268	70643	70330
FLORIDA	6664	7214	7629	8179	8179	8179	8179	8179	8179	8179	8179
SOUTHERN	22456	23311	23311	24785	24644	25344	25385	25385	25366	25741	25428
TVA	15838	15838	15838	15838	15838	15838	15838	15838	15838	15838	15838
VACAR	20121	20169	20169	20195	20195	20195	20885	20885	20885	20885	20885
SPP	25746	25779	25776	25776	26020	26020	26102	26102	26842	26842	27522
SOUTHEAST	6085	6032	6029	6029	6029	6029	6029	6029	6029	6029	6569
WEST CENTRAL	9402	9515	9515	9515	9759	9759	9759	9759	9759	9759	9759
NORTHERN	10259	10232	10232	10232	10232	10232	10314	10314	11054	11054	11194
WSCC[b]	28638	30074	30067	30587	30685	31188	31189	31188	31723	32339	32461
NW POOL	11079	11136	11134	11134	11132	11132	11132	11132	11182	11212	11292
ROCKY MT-AREA	5717	6095	6196	6200	6216	6226	6227	6226	6711	7061	7061
ARIZ-N.MEX	6336	7337	7407	8077	8357	8707	8707	8707	8707	8775	8775
CALIF-SO.NEV	5474	5506	5330	5176	4980	5123	5123	5123	5123	5291	5333
TOTAL(U.S.)	281339	285940	288361	292529	292753	297066	299097	300984	303918	305630	307425
NERC-CANADA											
MAPP	1929	1916	1916	1916	1916	2135	2135	2135	2135	2411	2411
NPCC	11332	11346	11499	11834	11834	11846	11996	11972	12457	12757	12757
NEW BRUNSWICK	284	284	284	619	619	619	619	595	930	930	930
NOVA SCOTIA	880	880	1033	1033	1033	1033	1183	1183	1333	1633	1633
ONTARIO	10168	10182	10182	10182	10182	10194	10194	10194	10194	10194	10194
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	4531	4531	4531	4531	4917	5283	5669	5669	5669	6029	6389
TOTAL(CANADA)	17792	17793	17946	18281	18667	19264	19800	19776	20261	21197	21557
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	299131	303733	306307	310810	311420	316330	318897	320760	324179	326827	328982

a) About 81% has the capability of burning either coal or oil equally.
b) Because of subregional peak demand diversities, the sum of the individual subregional capacities at the time of the respective subregional peak demands may not equal the total WSCC (U.S.) capacity.

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED NUCLEAR GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	4600	6930	7691	7691	7691	7691	7737	7737	7737	7737	7737
ERCOT	0	0	1250	3677	4712	4712	4712	4712	4712	4712	4712
MAAC	10472	11566	11566	11566	11566	12621	12621	12621	12621	12621	12621
MAIN	10598	13758	13799	14889	14889	14889	14889	14889	14889	14889	14889
CMNWLTH EDISON	7994	10204	10204	11294	11294	11294	11294	11294	11294	11294	11294
EAST MISSOURI	1109	1109	1150	1150	1150	1150	1150	1150	1150	1150	1150
S CENT ILLINOIS	0	950	950	950	950	950	950	950	950	950	950
WIS-UPPER MICH	1495	1495	1495	1495	1495	1495	1495	1495	1495	1495	1495
MAPP	3735	3751	3751	3751	3751	3751	3751	3751	3751	3751	3751
NPCC	9074	9096	12135	12135	12135	12135	12135	12135	12135	12135	12135
NEW YORK	3694	3694	5583	5583	5583	5583	5583	5583	5583	5583	5583
NEW ENGLAND	5380	5402	6552	6552	6552	6552	6552	6552	6552	6552	6552
SERC	25048	28202	28202	30472	31701	31701	31701	31701	32913	32913	34125
FLORIDA	3717	3717	3717	3717	3747	3747	3747	3747	3747	3747	3747
SOUTHERN	3337	4402	4402	5473	5473	5473	5473	5473	5473	5473	5473
TVA	5491	5491	5491	6661	7831	7831	7831	7831	9043	9043	10255
VACAR	12503	14592	14592	14621	14650	14650	14650	14650	14650	14650	14650
SPP	5763	5763	5891	5891	5891	5891	5891	5891	5891	5891	5891
SOUTHEAST	4703	4703	4831	4831	4831	4831	4831	4831	4831	4831	4831
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	1060	1060	1060	1060	1060	1060	1060	1060	1060	1060	1060
WSCC	10190	10589	11859	11859	11859	11629	11629	11629	11629	11629	11629
NW POOL	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180
ROCKY MT-AREA	200	230	230	230	230	0	0	0	0	0	0
ARIZ-N.MEX	1484	1853	2780	2780	2780	2780	2780	2780	2780	2780	2780
CALIF-SO.NEV	6326	6326	6669	6669	6669	6669	6669	6669	6669	6669	6669
TOTAL(U.S.)	79480	89655	96144	101931	104195	105020	105066	105066	106278	106278	107490
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	11031	11848	11940	13792	13792	14673	15554	15554	15554	15554	15554
NEW BRUNSWICK	635	635	635	635	635	635	635	635	635	635	635
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	9709	10548	10640	12492	12492	13373	14254	14254	14254	14254	14254
QUEBEC	687	665	665	665	665	665	665	665	665	665	665
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	11031	11848	11940	13792	13792	14673	15554	15554	15554	15554	15554
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	90511	101503	108084	115723	117987	119693	120620	120620	121832	121832	123044

APPENDIX A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED HYDRO[a] GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	681	681	681	725	736	738	738	738	738	738	738
ERCOT	247	247	247	247	247	247	247	247	247	247	247
MAAC	1133	1144	1148	1148	1148	1148	1148	1148	1148	1148	1148
MAIN	579[b]	573	579	579	579	579	579	579	579	579	579
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	331	331	331	331	331	331	331	331	331	331	331
S CENT ILLINOIS	2	2	2	2	2	2	2	2	2	2	2
WIS-UPPER MICH	246[b]	240	246	246	246	246	246	246	246	246	246
MAPP	3108[b]	3049	2964	2825	2825	2714	2720	2720	2720	2720	2720
NPCC	5313	5313	5304	5305	5339	5392	5392	5392	5392	5712	5712
NEW YORK	3989	3999	3987	3987	4021	4074	4074	4074	4074	4394	4394
NEW ENGLAND	1324[b]	1314	1317	1318	1318	1318	1318	1318	1318	1318	1318
SERC	11208[b]	11195	11197	11197	11247	11247	11317	11317	11317	11317	11395
FLORIDA	43	43	43	43	43	43	43	43	43	43	43
SOUTHERN[c]	3819[b]	3800	3800	3800	3850	3850	3920	3920	3920	3920	3998
TVA	4674	4674	4674	4674	4674	4674	4674	4674	4674	4674	4674
VACAR	2672	2678	2680	2680	2680	2680	2680	2680	2680	2680	2680
SPP	2334	2445	2445	2462	2462	2578	2578	2578	2578	2578	2578
SOUTHEAST	70	70	70	87	87	87	87	87	87	87	87
WEST CENTRAL	2248	2359	2359	2359	2359	2475	2475	2475	2475	2475	2475
NORTHERN	16	16	16	16	16	16	16	16	16	16	16
WSCC[d]	45833[b]	42589	43598	44051	44308	44400	44580	44829	45252	45311	45309
NW POOL	32794[b]	30199	30790	30792	30792	30284	31057	31100	31100	31106	31106
ROCKY MT-AREA	2181	2376	2408	2418	2446	2467	2467	2467	2467	2467	2467
ARIZ-N.MEX	604	686	736	843	820	820	846	858	958	958	958
CALIF-SO.NEV	9405[b]	9210	9553	9887	10139	10198	10341	10532	10855	10910	10908
TOTAL(U.S.)	70436[b]	67236	68163	68539	68891	69043	69299	69548	69971	70350	70426
NERC-CANADA											
MAPP	4412	4415	4415	4415	4415	5135	5495	5615	5707	5707	5707
NPCC	28837	29256	29326	29873	30422	30465	31106	31747	32149	32274	32274
NEW BRUNSWICK	884	884	884	884	884	884	884	884	884	884	884
NOVA SCOTIA	379	379	379	379	379	379	379	379	379	379	379
ONTARIO	6160	6170	6171	6171	6171	6171	6171	6171	6573	6698	6698
QUEBEC	21414	21823	21892	22439	22988	23031	23672	24313	24313	24313	2431[illegible]
WSCC	11122	11138	11138	11138	11138	11138	11138	11138	11138	11138	11138
TOTAL(CANADA)	44371	44809	44879	45426	45975	46738	47739	48500	48994	49119	49119
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	114807[b]	112045	113042	113965	114866	115781	117038	118048	118965	119469	119545

a) Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.
b) Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.
c) Average hydro conditions.
d) See Appendix A, page 1, footnote b.

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED PUMPED STORAGE GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	3583	3583	3583	3583	3583	3583	3583	3583	3583	3583	3583
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	1280	1280	1280	1280	1280	1280	1280	1280	1280	1280	1280
MAIN	300	300	300	300	300	300	300	300	300	300	300
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	300	300	300	300	300	300	300	300	300	300	300
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	2587	2594	2594	2594	2594	2594	2594	2594	2594	2594	3594
NEW YORK	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	2000
NEW ENGLAND	1587	1594	1594	1594	1594	1594	1594	1594	1594	1594	1594
SERC	4412	4412	4412	4462	4687	5312	5812	5812	5812	5812	5812
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	498	498	498	548	698	748	748	748	748	748	748
TVA	1532	1532	1532	1532	1532	1532	1532	1532	1532	1532	1532
VACAR	2382	2382	2382	2382	2457	3032	3532	3532	3532	3532	3532
SPP	260	260	260	260	260	260	260	260	260	260	260
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	260	260	260	260	260	260	260	260	260	260	260
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	3610	3497	3596	3596	3599	3591	3599	3710	3709	3706	3705
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT AREA	287	266	368	368	368	368	368	368	368	368	368
ARIZ-N.MEX	137	137	137	137	137	137	137	137	137	137	137
CALIF-SO NV	3186	3094	3091	3091	3094	3086	3094	3205	3204	3201	3200
TOTAL(U.S.)	16032	15926	16025	16075	16303	16920	17428	17539	17538	17535	18534
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	16032	15926	16025	16075	16303	16920	17428	17539	17538	17535	18534

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED GEOTHERMAL GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	1903	1964	2198	2359	2612	2627	2642	2697	2712	2902	2967
NW POOL	20	55	55	55	55	55	70	70	85	85	100
ROCKY MT-AREA	0	0	0	0	0	10	10	10	10	10	10
ARIZ-N.MEX	0	0	5	5	5	5	5	5	5	5	5
CALIF-SO.NEV	1883	1909	2138	2299	2552	2557	2557	2612	2612	2802	2852
TOTAL(U.S.)	1903	1964	2198	2359	2612	2627	2642	2697	2712	2902	2967
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	373	573	573	573	573	573	573	623	673	673	673
TOTAL(MEXICO)	373	573	573	573	573	573	573	623	673	673	673
NERC-TOTAL	2276	2537	2771	2932	3185	3200	3215	3320	3385	3575	3640

APPENDIX A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED OIL- AND GAS-FIRED GENERATING CAPACITY[a] - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	.1996
NERC-U.S.											
ECAR	5954	5880	5895	5893	5903	5692	5772	5775	5931	6131	6364
ERCOT	31305	31121	32302	32302	32582	32426	32536	32389	32151	31946	31883
MAAC	17452	17507	17471	17471	17678	17564	17438	17269	17228	17228	17527
MAIN	6408	6407	6393	6362	6355	6355	6355	6355	6355	6355	6355
CMNWLTH EDISON	3738	3738	3738	3738	3738	3738	3738	3738	3738	3738	3738
EAST MISSOURI	861	860	860	860	860	860	860	860	860	860	860
S CENT ILLINOIS	862	862	862	862	862	862	862	862	862	862	862
WIS-UPPER MICH	947	947	933	902	895	895	895	895	895	895	895
MAPP	3426	3381	3250	3246	3296	3346	3384	3422	3422	3418	3433
NPCC	27763	27365	27082	26962	26911	26879	26878	26474	26458	26320	26294
NEW YORK	17448	17218	16699	16699	16699	16699	16699	16699	16699	16699	16830
NEW ENGLAND	10315	10147	10383	10263	10212	10180	10179	9775	9759	9621	9464
SERC	26312	26273	26339	26528	26991	27162	27697	28362	29637	31635	32035
FLORIDA	17010	17010	17121	17294	17530	17773	18003	18007	18971	20393	20757
SOUTHERN	2562	2565	2520	2536	2474	2344	2303	2423	2473	2473	2345
TVA	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066
VACAR	4674	4632	4632	4632	4921	4979	5325	5866	6127	6703	6867
SPP	30816	30191	30146	30146	30121	30006	29857	30264	29850	29661	29921
SOUTHEAST	16973	16683	16658	16658	16877	16766	16572	16726	16320	15988	15863
WEST CENTRAL	10392	10090	10090	10090	9846	9842	9842	9953	9913	9960	10215
NORTHERN	3451	3418	3398	3398	3398	3398	3443	3585	3617	3713	3843
WSCC[b]	32454	32188	31619	31607	31812	31557	31163	31233	31322	31479	31637
NW POOL	2176	2201	2206	2276	2276	2285	2368	2368	2368	2368	2368
ROCKY MT-AREA	766	893	893	893	893	893	893	893	885	877	877
ARIZ-N.MEX	4959	4909	4909	4805	4825	4825	4825	4825	4825	4888	4996
CALIF-SO.NEV	24548	24185	23611	23633	23818	23563	23169	23239	23336	23438	23488
TOTAL(U.S.)	181890	180313	180497	180517	181649	180987	181080	181543	182354	184173	185449
NERC-CANADA											
MAPP	275	295	403	511	511	511	511	511	511	511	511
NPCC	6015	6005	6036	5701	5701	5701	5701	5701	5701	5701	5701
NEW BRUNSWICK	1391	1391	1382	1047	1047	1047	1047	1047	1047	1047	1047
NOVA SCOTIA	539	539	539	539	539	539	539	539	539	539	539
ONTARIO	3020	3010	3050	3050	3050	3050	3050	3050	3050	3050	3050
QUEBEC	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065
WSCC	2251	2272	2272	2272	2226	2118	2115	2115	2115	2115	2115
TOTAL(CANADA)	8541	8572	8711	8484	8438	8330	8327	8327	8327	8327	8327
NERC-MEXICO											
WSCC	455	455	455	455	600	600	745	745	745	745	745
TOTAL(MEXICO)	455	455	455	455	600	600	745	745	745	745	745
NERC-TOTAL	190886	189340	189663	189456	190687	189917	190152	190615	191426	193245	194521

a) Includes oil-, gas-, and dual fuel (oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.
b) See Appendix A, page 1, footnote b.

APPENDIX A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED OIL-FIRED GENERATING CAPACITY[a] - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	4669	4595	4595	4592	4592	4496	4576	4579	4749	4949	5144
ERCOT	41	41	41	41	41	41	41	41	41	41	41
MAAC	15378	15395	15359	15359	15356	14902	14776	14607	14566	14566	14665
MAIN	4562	4562	4548	4548	4548	4548	4548	4548	4548	4548	4548
CMNWLTH EDISON	3136	3136	3136	3136	3136	3136	3136	3136	3136	3136	3136
EAST MISSOURI	558	558	558	558	558	558	558	558	558	558	558
S CENT ILLINOIS	522	522	522	522	522	522	522	522	522	522	522
WIS-UPPER MICH	346	346	332	332	332	332	332	332	332	332	332
MAPP	2488	2400	2376	2372	2422	2472	2512	2500	2500	2496	2507
NPCC	15378	14980	15096	14976	14925	14893	14892	14488	14472	14334	14177
NEW YORK	8070	7840	7720	7720	7720	7720	7720	7720	7720	7720	7720
NEW ENGLAND	7308	7140	7376	7256	7205	7173	7172	6768	6752	6614	6457
SERC	12716	12687	12642	12732	12976	13199	13222	13272	13720	13795	13866
FLORIDA	7321	7321	7321	7411	7655	7878	7942	7942	8340	8415	8533
SOUTHERN	1378	1381	1336	1336	1336	1336	1295	1345	1395	1395	1348
TVA	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464
VACAR	2553	2521	2521	2521	2521	2521	2521	2521	2521	2521	2521
SPP	1314	1304	1304	1304	1304	1300	1300	1128	1088	1088	1158
SOUTHEAST	221	221	221	221	221	221	221	221	221	221	221
WEST CENTRAL	81	71	71	71	71	67	67	75	35	35	35
NORTHERN	1012	1012	1012	1012	1012	1012	1012	832	832	832	902
WSCC	1485	1472	1472	1472	1472	1472	1483	1553	1623	1623	1623
NW POOL	331	331	331	331	331	331	342	342	342	342	342
ROCKY MT-AREA	411	411	411	411	411	411	411	411	411	411	411
ARIZ-N.MEX	143	143	143	143	143	143	143	143	143	143	143
CALIF-SO.NEV	600	587	587	587	587	587	587	657	727	727	727
TOTAL(U.S.)	58031	57436	57433	57396	57636	57323	57350	56716	57307	57440	57729
NERC-CANADA											
MAPP	22	22	22	22	22	22	22	22	22	22	22
NPCC	5427	5417	5448	5113	5113	5113	5113	5113	5113	5113	5113
NEW BRUNSWICK	1391	1391	1382	1047	1047	1047	1047	1047	1047	1047	1047
NOVA SCOTIA	539	539	539	539	539	539	539	539	539	539	539
ONTARIO	2432	2422	2462	2462	2462	2462	2462	2462	2462	2462	2462
QUEBEC	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065
WSCC	97	97	97	97	97	97	94	94	94	94	94
TOTAL(CANADA)	5546	5536	5567	5232	5232	5232	5229	5229	5229	5229	5229
NERC-MEXICO											
WSCC	455	455	455	455	600	600	745	745	745	745	745
TOTAL(MEXICO)	455	455	455	455	600	600	745	745	745	745	745
NERC-TOTAL	64032	63427	63455	63083	63468	63155	63324	62690	63281	63414	63703

a) Includes oil-fired steam, combustion turbine (and diesel), and combined cycle units. Excludes dual fuel (oil/gas)-fired capacity.

APPENDIX A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED OIL-STEAM GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	2790	2716	2716	2716	2716	2716	2716	2716	2716	2716	2716
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	9621	9637	9637	9637	9637	9186	9060	8894	8894	8894	8894
MAIN	3334	3334	3334	3334	3334	3334	3334	3334	3334	3334	3334
CMNWLTH EDISON	2698	2698	2698	2698	2698	2698	2698	2698	2698	2698	2698
EAST MISSOURI	196	196	196	196	196	196	196	196	196	196	196
S CENT ILLINOIS	434	434	434	434	434	434	434	434	434	434	434
WIS-UPPER MICH	6	6	6	6	6	6	6	6	6	6	6
MAPP	134	97	99	99	99	149	199	187	187	187	187
NPCC	12512	12111	12227	12124	12124	12125	12124	11720	11704	11623	11622
NEW YORK	6287	6057	5937	5937	5937	5937	5937	5937	5937	5937	5937
NEW ENGLAND	6225	6054	6290	6187	6187	6188	6187	5783	5767	5686	5685
SERC	6508	6479	6479	6504	6572	6646	6669	6669	6931	6931	7049
FLORIDA	5057	5057	5057	5082	5150	5224	5288	5288	5550	5550	5668
SOUTHERN	228	231	231	231	231	231	190	190	190	190	190
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	1223	1191	1191	1191	1191	1191	1191	1191	1191	1191	1191
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	112	112	112	112	112	112	112	112	112	112	112
NW POOL	112	112	112	112	112	112	112	112	112	112	112
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	35011	34486	34604	34526	34594	34268	34214	33632	33878	33797	33914
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4561	4561	4552	4217	4217	4217	4217	4217	4217	4217	4217
NEW BRUNSWICK	1365	1365	1356	1021	1021	1021	1021	1021	1021	1021	1021
NOVA SCOTIA	334	334	334	334	334	334	334	334	334	334	334
ONTARIO	2232	2232	2232	2232	2232	2232	2232	2232	2232	2232	2232
QUEBEC	630	630	630	630	630	630	630	630	630	630	630
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	4561	4561	4552	4217	4217	4217	4217	4217	4217	4217	4217
NERC-MEXICO											
WSCC	286	286	286	286	431	431	576	576	576	576	576
TOTAL(MEXICO)	286	286	286	286	431	431	576	576	576	576	576
NERC-TOTAL	39858	39333	39442	39029	39242	38916	39007	38425	38671	38590	38707

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED OIL-COMBUSTION TURBINE GENERATING CAPACITY[a] - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	1857	1857	1857	1854	1854	1758	1838	1841	2011	2211	2271
ERCOT	41	41	41	41	41	41	41	41	41	41	41
MAAC	5643	5644	5608	5608	5605	5602	5602	5599	5558	5558	5657
MAIN	1190	1190	1190	1190	1190	1190	1190	1190	1190	1190	1190
CMNWLTH EDISON	438	438	438	438	438	438	438	438	438	438	438
EAST MISSOURI	362	362	362	362	362	362	362	362	362	362	362
S CENT ILLINOIS	88	88	88	88	88	88	88	88	88	88	88
WIS-UPPER MICH	302	302	302	302	302	302	302	302	302	302	302
MAPP	2303	2252	2226	2222	2272	2272	2262	2262	2262	2258	2269
NPCC	2701	2704	2704	2687	2636	2603	2603	2603	2603	2546	2390
NEW YORK	1783	1783	1783	1783	1783	1783	1783	1783	1783	1783	1783
NEW ENGLAND	918	921	921	904	853	820	820	820	820	763	607
SERC	6208	6208	6163	6228	6404	6553	6553	6603	6789	6864	6817
FLORIDA	2264	2264	2264	2329	2505	2654	2654	2654	2790	2865	2865
SOUTHERN	1150	1150	1105	1105	1105	1105	1105	1155	1205	1205	1158
TVA	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464
VACAR	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330
SPP	1314	1304	1304	1304	1304	1300	1300	1128	1088	1088	1158
SOUTHEAST	221	221	221	221	221	221	221	221	221	221	221
WEST CENTRAL	81	71	71	71	71	67	67	75	35	35	35
NORTHERN	1012	1012	1012	1012	1012	1012	1012	832	832	832	902
WSCC	1373	1360	1360	1360	1360	1360	1371	1441	1511	1511	1511
NW POOL	219	219	219	219	219	219	230	230	230	230	230
ROCKY MT-AREA	411	411	411	411	411	411	411	411	411	411	411
ARIZ-N.MEX	143	143	143	143	143	143	143	143	143	143	143
CALIF-SO.NEV	600	587	587	587	587	587	587	657	727	727	727
TOTAL(U.S.)	22630	22560	22453	22494	22666	22679	22760	22708	23053	23267	23304
NERC-CANADA											
MAPP	22	22	22	22	22	22	22	22	22	22	22
NPCC	866	856	896	896	896	896	896	896	896	896	896
NEW BRUNSWICK	26	26	26	26	26	26	26	26	26	26	26
NOVA SCOTIA	205	205	205	205	205	205	205	205	205	205	205
ONTARIO	200	190	230	230	230	230	230	230	230	230	230
QUEBEC	435	435	435	435	435	435	435	435	435	435	435
WSCC	97	97	97	97	97	97	94	94	94	94	94
TOTAL(CANADA)	985	975	1015	1015	1015	1015	1012	1012	1012	1012	1012
NERC-MEXICO											
WSCC	169	169	169	169	169	169	169	169	169	169	169
TOTAL(MEXICO)	169	169	169	169	169	169	169	169	169	169	169
NERC-TOTAL	23784	23704	23637	23678	23850	23863	23941	23889	24234	24448	24485

a) Includes diesel units.

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED OIL-COMBINED CYCLE GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	22	22	22	22	22	22	22	22	22	22	157
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	114	114	114	114	114	114	114	114	114	114	114
MAIN	38	38	24	24	24	24	24	24	24	24	24
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	38	38	24	24	24	24	24	24	24	24	24
MAPP	51	51	51	51	51	51	51	51	51	51	51
NPCC	165	165	165	165	165	165	165	165	165	165	165
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	165	165	165	165	165	165	165	165	165	165	165
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	390	390	376	376	376	376	376	376	376	376	511
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	390	390	376	376	376	376	376	376	376	376	511

APPENDIX A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED GAS-FIRED GENERATING CAPACITY[a] - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	1285	1285	1300	1301	1311	1196	1196	1196	1182	1182	1220
ERCOT	24670	24486	25050	25082	24972	24816	24626	24349	23981	23576	23351
MAAC	1945	1983	1983	1983	2193	2533	2533	2533	2533	2533	2733
MAIN	305	305	305	305	305	305	305	305	305	305	305
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	72	72	72	72	72	72	72	72	72	72	72
S CENT ILLINOIS	30	30	30	30	30	30	30	30	30	30	30
WIS-UPPER MICH	203	203	203	203	203	203	203	203	203	203	203
MAPP	111	139	76	76	76	76	80	80	80	80	80
NPCC	915	915	915	915	915	915	915	915	915	915	1085
NEW YORK	45	45	45	45	45	45	45	45	45	45	215
NEW ENGLAND	870	870	870	870	870	870	870	870	870	870	870
SERC	772	772	772	718	656	526	526	526	526	526	445
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	763	763	763	709	647	517	517	517	517	517	436
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	9	9	9	9	9	9	9	9	9	9	9
SPP	13631	13049	13049	13049	13024	13112	13332	13589	13589	13700	13845
SOUTHEAST	4239	3949	3949	3949	4168	4256	4400	4554	4554	4554	4554
WEST CENTRAL	8833	8541	8541	8541	8297	8297	8297	8400	8400	8447	8532
NORTHERN	559	559	559	559	559	559	635	635	635	699	759
WSCC	396	396	396	396	396	396	396	396	388	380	380
NW POOL	12	12	12	12	12	12	12	12	12	12	12
ROCKY MT-AREA	16	16	16	16	16	16	16	16	8	0	0
ARIZ-N.MEX	10	10	10	10	10	10	10	10	10	10	10
CALIF-SO.NEV	358	358	358	358	358	358	358	358	358	358	358
TOTAL(U.S.)	44030	43330	43846	43825	43848	43875	43909	43889	43499	43197	43444
NERC-CANADA											
MAPP	253	273	381	489	489	489	489	489	489	489	489
NPCC	588	588	588	588	588	588	588	588	588	588	588
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	588	588	588	588	588	588	588	588	588	588	588
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	1254	1275	1275	1275	1229	1121	1121	1121	1121	1121	1121
TOTAL(CANADA)	2095	2136	2244	2352	2306	2198	2198	2198	2198	2198	2198
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	46125	45466	46090	46177	46154	46073	46107	46087	45697	45395	45642

a) Includes gas-fired steam, combustion turbine (and diesel), and combined cycle units. Excludes dual fuel (oil/gas)-fired capacity.

APPENDIX A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED GAS-STEAM GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	141	141	141	142	142	27	27	27	27	27	157
ERCOT	24367	24183	24579	24579	24319	24013	23823	23496	23128	22723	22423
MAAC	421	421	421	421	421	421	421	421	421	421	421
MAIN	61	61	61	61	61	61	61	61	61	61	61
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	35	35	35	35	35	35	35	35	35	35	35
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	26	26	26	26	26	26	26	26	26	26	26
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	592	592	592	592	592	592	592	592	592	592	592
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	592	592	592	592	592	592	592	592	592	592	592
SERC	712	712	712	658	596	466	466	466	466	466	385
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	712	712	712	658	596	466	466	466	466	466	385
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	12254	11672	11672	11672	11655	11743	11913	12229	12229	12340	12425
SOUTHEAST	4231	3941	3941	3941	4168	4256	4400	4554	4554	4554	4554
WEST CENTRAL	7691	7399	7399	7399	7155	7155	7155	7317	7317	7364	7449
NORTHERN	332	332	332	332	332	332	358	358	358	422	422
WSCC	374	374	374	374	374	374	374	374	366	358	358
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	16	16	16	16	16	16	16	16	8	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	358	358	358	358	358	358	358	358	358	358	358
TOTAL(U.S.)	38922	38156	38552	38499	38160	37697	37677	37666	37290	36988	36822
NERC-CANADA											
MAPP	96	95	95	95	95	95	95	95	95	95	95
NPCC	588	588	588	588	588	588	588	588	588	588	588
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	588	588	588	588	588	588	588	588	588	588	588
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	966	966	966	966	966	888	888	888	888	888	888
TOTAL(CANADA)	1650	1649	1649	1649	1649	1571	1571	1571	1571	1571	1571
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	40572	39805	40201	40148	39809	39268	39248	39237	38861	38559	38393

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED GAS-COMBUSTION TURBINE GENERATING CAPACITY[a] - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	1144	1144	1159	1159	1169	1169	1169	1169	1155	1155	1063
ERCOT	275	275	443	475	625	775	775	775	775	775	850
MAAC	1306	1344	1344	1344	1344	1544	1544	1544	1544	1544	1744
MAIN	244	244	244	244	244	244	244	244	244	244	244
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	37	37	37	37	37	37	37	37	37	37	37
S CENT ILLINOIS	30	30	30	30	30	30	30	30	30	30	30
WIS-UPPER MICH	177	177	177	177	177	177	177	177	177	177	177
MAPP	111	139	76	76	76	76	80	80	80	80	80
NPCC	244	244	244	244	244	244	244	244	244	244	244
NEW YORK	45	45	45	45	45	45	45	45	45	45	45
NEW ENGLAND	199	199	199	199	199	199	199	199	199	199	199
SERC	60	60	60	60	60	60	60	60	60	60	60
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	51	51	51	51	51	51	51	51	51	51	51
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	9	9	9	9	9	9	9	9	9	9	9
SPP	624	624	624	624	616	616	666	607	607	607	667
SOUTHEAST	8	8	8	8	0	0	0	0	0	0	0
WEST CENTRAL	389	389	389	389	389	389	389	330	330	330	330
NORTHERN	227	227	227	227	227	227	277	277	277	277	337
WSCC	12	12	12	12	12	12	12	12	12	12	12
NW POOL	12	12	12	12	12	12	12	12	12	12	12
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	4020	4086	4206	4238	4390	4740	4794	4735	4721	4721	4964
NERC-CANADA											
MAPP	157	178	286	394	394	394	394	394	394	394	394
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	288	309	309	309	263	233	233	233	233	233	233
TOTAL(CANADA)	445	487	595	703	657	627	627	627	627	627	627
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	4465	4573	4801	4941	5047	5367	5421	5362	5348	5348	5591

a) Includes diesel units.

APPENDIX A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED GAS-COMBINED CYCLE GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	28	28	28	28	28	28	28	78	78	78	78
MAAC	218	218	218	218	428	568	568	568	568	568	568
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	79	79	79	79	79	79	79	79	79	79	249
NEW YORK	0	0	0	0	0	0	0	0	0	0	170
NEW ENGLAND	79	79	79	79	79	79	79	79	79	79	79
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	753	753	753	753	753	753	753	753	753	753	753
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	753	753	753	753	753	753	753	753	753	753	753
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	10	10	10	10	10	10	10	10	10	10	10
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	10	10	10	10	10	10	10	10	10	10	10
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	1088	1088	1088	1088	1298	1438	1438	1488	1488	1488	1658
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1088	1088	1088	1088	1298	1438	1438	1488	1488	1488	1658

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED DUAL FUEL (OIL/GAS)-FIRED GENERATING CAPACITY[a] - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	6594	6594	7211	7179	7569	7569	7869	7999	8129	8329	8491
MAAC	129	129	129	129	129	129	129	129	129	129	129
MAIN	1541	1540	1540	1509	1502	1502	1502	1502	1502	1502	1502
CMNWLTH EDISON	602	602	602	602	602	602	602	602	602	602	602
EAST MISSOURI	231	230	230	230	230	230	230	230	230	230	230
S CENT ILLINOIS	310	310	310	310	310	310	310	310	310	310	310
WIS-UPPER MICH	398	398	398	367	360	360	360	360	360	360	360
MAPP	827	842	798	798	798	798	792	842	842	842	846
NPCC	11470	11470	11071	11071	11071	11071	11071	11071	11071	11071	11032
NEW YORK	9333	9333	8934	8934	8934	8934	8934	8934	8934	8934	8895
NEW ENGLAND	2137	2137	2137	2137	2137	2137	2137	2137	2137	2137	2137
SERC	12824	12814	12925	13078	13359	13437	13949	14564	15391	17314	17724
FLORIDA	9689	9689	9800	9883	9875	9895	10061	10065	10631	11978	12224
SOUTHERN	421	421	421	491	491	491	491	561	561	[illegible]	561
TVA	[illegible]	602	602	602	602	602	602	602	602	602	602
VACAR	[illegible]	2102	2102	2102	2391	2449	2795	3336	3597	4173	4337
SPP	15871	15838	15793	15793	15793	15594	15225	15547	[illegible]	14873	14918
SOUTHEAST	12513	12513	12488	12488	12488	12289	11951	11951	[illegible]	11213	11088
WEST CENTRAL	1478	1478	1478	1478	1478	1478	1478	1478	1478	1478	1648
NORTHERN	1880	1847	1827	1827	1827	1827	1796	2118	2150	2182	2182
WSCC[b]	30573	30320	29751	29739	29944	29689	29284	29284	29311	29476	29634
NW POOL	[illegible]	1858	1863	1933	1933	1942	2014	2014	2014	2014	2014
ROCKY MT-AREA	[illegible]	466	466	466	466	466	466	466	466	466	466
ARIZ-N.MEX	4806	4756	4756	4652	4672	4672	4672	4672	4672	4735	4843
CALIF-SO.NEV	23590	23240	22666	22688	22873	22618	22224	22224	22251	22353	22403
TOTAL(U.S.)	79829	79547	79218	79296	80165	79789	79821	80938	81548	83536	84276
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	900	900	900	900	900	900	900	900	900	900	900
TOTAL(CANADA)	900	900	900	900	900	900	900	900	900	900	900
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	80729	80447	80118	80196	81065	80689	80721	81838	82448	84436	85176

---

a) Includes dual fuel (oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.
b) See Appendix A, page 1, footnote b.

APPENDIX A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED DUAL FUEL (OIL/GAS)-STEAM GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	5360	5360	5360	5360	5360	5360	5360	5360	5360	5360	5360
MAAC	129	129	129	129	129	129	129	129	129	129	129
MAIN	504	503	503	472	465	465	465	465	465	465	465
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	231	230	230	230	230	230	230	230	230	230	230
S CENT ILLINOIS	147	147	147	147	147	147	147	147	147	147	147
WIS-UPPER MICH	126	126	126	95	88	88	88	88	88	88	88
MAPP	194	225	171	171	171	171	165	165	165	165	165
NPCC	9397	9397	8998	8998	8998	8998	8998	8998	8998	8998	8959
NEW YORK	7648	7648	7249	7249	7249	7249	7249	7249	7249	7249	7210
NEW ENGLAND	1749	1749	1749	1749	1749	1749	1749	1749	1749	1749	1749
SERC	8861	8861	8972	8972	8926	8926	8926	8930	9196	9196	9142
FLORIDA	7590	7590	7701	7701	7701	7701	7701	7705	7971	7971	7917
SOUTHERN	359	359	359	359	359	359	359	359	359	359	359
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	912	912	912	912	866	866	866	866	866	866	866
SPP	14992	14958	14913	14913	14913	14714	14345	14412	14006	13674	13549
SOUTHEAST	12216	12216	12191	12191	12191	11992	11654	11654	11248	10916	10791
WEST CENTRAL	1478	1478	1478	1478	1478	1478	1478	1478	1478	1478	1478
NORTHERN	1298	1264	1244	1244	1244	1244	1213	1280	1280	1280	1280
WSCC	24147	23567	22885	22804	22779	22314	21920	21920	21964	22129	22237
NW POOL	542	542	542	612	612	612	612	612	612	612	612
ROCKY MT-AREA	252	264	264	264	264	264	264	264	264	264	264
ARIZ-N.MEX	2619	2569	2569	2465	2485	2485	2485	2485	2485	2548	2656
CALIF-SO.NEV	20734	20192	19510	19463	19418	18953	18559	18559	18603	18705	18705
TOTAL(U.S.)	63584	63000	61931	61819	61741	61077	60308	60379	60283	60116	60006
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	900	900	900	900	900	900	900	900	900	900	900
TOTAL(CANADA)	900	900	900	900	900	900	900	900	900	900	900
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	64484	63900	62831	62719	62641	61977	61208	61279	61183	61016	60906

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED DUAL FUEL (OIL/GAS)-COMBUSTION TURBINE GENERATING CAPACITY[a]- SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	734	734	1351	1319	1709	1709	2009	2139	2269	2469	2631
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	1037	1037	1037	1037	1037	1037	1037	1037	1037	1037	1037
CMNWLTH EDISON	602	602	602	602	602	602	602	602	602	602	602
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	163	163	163	163	163	163	163	163	163	163	163
WIS-UPPER MICH	272	272	272	272	272	272	272	272	272	272	272
MAPP	573	573	568	568	568	568	568	618	618	618	622
NPCC	1860	1860	1860	1860	1860	1860	1860	1860	1860	1860	1860
NEW YORK	1685	1685	1685	1685	1685	1685	1685	1685	1685	1685	1685
NEW ENGLAND	175	175	175	175	175	175	175	175	175	175	175
SERC	3336	3330	3330	3453	3445	3465	3631	3701	4001	4047	4347
FLORIDA	1564	1564	1564	1617	1609	1629	1795	1795	2095	2141	2441
SOUTHERN	62	62	62	132	132	132	132	202	202	202	202
TVA	602	602	602	602	602	602	602	602	602	602	602
VACAR	1108	1102	1102	1102	1102	1102	1102	1102	1102	1102	1102
SPP	601	602	602	602	602	602	602	692	724	756	926
SOUTHEAST	94	94	94	94	94	94	94	94	94	94	94
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	170
NORTHERN	507	508	508	508	508	508	508	598	630	662	662
WSCC[b]	3962	4287	4400	4469	4489	4489	4478	4478	4461	4461	4511
NW POOL	791	823	828	828	828	830	902	902	902	902	902
ROCKY MT-AREA	87	202	202	202	202	202	202	202	202	202	202
ARIZ-N.MEX	1348	1348	1348	1348	1348	1348	1348	1348	1348	1348	1348
CALIF-SO.NEV	1724	1914	2022	2091	2111	2111	2111	2111	2094	2094	2144
TOTAL(U.S.)	12103	12423	13148	13308	13710	13730	14185	14525	14970	15248	15934
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	12103	12423	13148	13308	13710	13730	14185	14525	14970	15248	15934

a) Includes diesel units.
b) See Appendix A, page 1, footnote b.

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED DUAL FUEL (OIL/GAS)-COMBINED CYCLE GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	500	500	500	500	500	500	500	500	500	500	500
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	60	44	59	59	59	59	59	59	59	59	59
NPCC	213	213	213	213	213	213	213	213	213	213	213
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	213	213	213	213	213	213	213	213	213	213	213
SERC	627	623	623	653	988	1046	1392	1933	2194	4071	4235
FLORIDA	535	535	535	565	565	565	565	565	565	1866	1866
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	92	88	88	88	423	481	827	1368	1629	2205	2369
SPP	278	278	278	278	278	278	278	443	443	443	443
SOUTHEAST	203	203	203	203	203	203	203	203	203	203	203
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	75	75	75	75	75	75	75	240	240	240	240
WSCC[a]	2464	2466	2466	2466	2676	2886	2886	2886	2886	2886	2886
NW POOL	500	493	493	493	493	500	500	500	500	500	500
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	839	839	839	839	839	839	839	839	839	839	839
CALIF-SO.NEV	1132	1134	1134	1134	1344	1554	1554	1554	1554	1554	1554
TOTAL(U.S.)	4142	4124	4139	4169	4714	4982	5328	6034	6295	8172	8336
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	4142	4124	4139	4169	4714	4982	5328	6034	6295	8172	8336

a) See Appendix A, page 1, footnote b.

APPENDIX A
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL
ACTUAL AND PROJECTED OTHER GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	69	69	100	1076	1284	1284	1284	1284	1284	1284
ERCOT[a]	0	0	0	0	20	56	206	356	356	356	356
MAAC[b]	17	18	111	531	1099	1479	1724	2290	2435	2595	2750
MAIN	3	3	13	23	23	45	55	55	67	75	101
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	3	3	3	3	3	3	3	3	3	3	3
WIS-UPPER MICH	0	0	10	20	20	42	52	52	64	72	98
MAPP[c]	35	35	35	35	35	35	35	35	35	35	35
NPCC	352	626	774	848	1074	1104	1199	1229	1294	1389	1449
NEW YORK	300	574	722	796	1022	1052	1147	1177	1242	1337	1397
NEW ENGLAND	52	52	52	52	52	52	52	52	52	52	52
SERC[d]	109	384	628	1134	1289	1489	1539	1539	1839	1839	2139
FLORIDA[e]	12	12	12	12	12	12	12	12	12	12	12
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR[d]	97	372	616	1122	1277	1477	1527	1527	1827	1827	2127
SPP	183	205	305	305	305	605	605	605	605	605	605
SOUTHEAST	123	145	145	145	145	145	145	145	145	145	145
WEST CENTRAL	39	39	139	139	139	439	439	439	439	439	439
NORTHERN	21	21	21	21	21	21	21	21	21	21	21
WSCC[f]	1512	2186	3971	4702	5270	5459	5687	5891	6111	6322	6664
NW POOL	205	231	308	323	327	333	339	339	339	339	339
ROCKY MT-AREA	7	84	149	174	359	359	359	359	359	359	359
ARIZ-N.MEX	0	0	0	2	2	2	2	2	15	25	50
CALIF-SO.NEV	1309	1871	3514	4203	4582	4765	4987	5191	5398	5599	5916
TOTAL(U.S.)	2211	3526	5906	7678	10191	11556	12334	13284	14026	14500	15383
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	30	60	90	120	150	180	210
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA[g]	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	30	60	90	120	150	180	210
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	30	60	90	120	150	180	210
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	2211	3526	5906	7678	10221	11616	12424	13404	14176	14680	15593

a) Refuse and undesignated. b) Includes Bethlehem Steel, Delaware City 1&2, and non-utility generation.
c) Wood and waste heat.
d) Other capacity can not be specifically identified but reflects the increasing uncertainty of future demand and the difficulty of accurately gauging the effect of and the potential for load management and purchases from cogenerators and small power producers.
e) Combined Cycle: Combustion Turbine Portion/Steam Portion-Waste Heat Only.
f) See Appendix A, page 1, footnote b. g) Excludes 17 MW of tidal power.

APPENDIX B

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY COAL - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	395634	401507	393587	400149	401[illegible]30	403735	407814	411227	417787	424957	431719
ERCOT	71746	80154	82786	82932	85826	88634	92966	96677	104218	109102	115587
MAAC	98213	96856	97148	98000	95217	94451	95861	96863	96561	97593	100703
MAIN	108655	104843	101492	103034	104815	104785	110147	111729	111739	116054	114933
CMNWLTH EDISON	24065	21629	17760	15735	17390	15990	17830	19020	18990	20140	21265
EAST MISSOURI	21830	21948	20970	23400	23548	22992	24842	25300	24069	26119	25534
S CENT ILLINOIS	34353	31439	32063	32351	31479	32803	33770	33039	33981	34602	32435
WIS-UPPER MICH	28407	29827	30699	31548	32398	33000	33705	34370	34699	35193	35699
MAPP	76798	78889	83821	83973	86107	87278	87355	88931	89996	90230	92918
NPCC	34967	38042	37782	37297	38532	39529	40802	41319	42344	43593	45048
NEW YORK	20652	22573	23572	23028	24872	25838	27057	27575	27496	28518	29333
NEW ENGLAND	14315	15469	14210	14269	13660	13691	13745	13744	14848	15075	15715
SERC	331106	316145	313954	312307	327048	330140	337353	339819	337913	338428	348098
FLORIDA	32116	36926	43844	49914	52482	52861	53246	54540	54564	54308	55184
SOUTHERN	119769	108791	107585	106590	112082	115040	116639	113455	112486	110936	111572
TVA	83036	85397	73444	70867	69916	69754	70152	67668	65550	66503	68027
VACAR	96185	85031	89081	84936	92568	92485	97316	104156	105313	106681	113315
SPP	114955	117721	118283	120895	125736	127008	129659	131132	134462	136612	138787
SOUTHEAST	28106	26295	26283	26072	25789	26126	27254	27414	28054	28362	28267
WEST CENTRAL	43160	45994	46803	48172	51972	51905	52532	53436	54838	55756	56968
NORTHERN	43689	45432	45197	46651	47975	48977	49873	50282	51570	52494	53552
WSCC	144327	163679	169640	174462	176194	182069	184977	185614	188202	192022	196186
NW POOL	50050	61661	63830	68452	70972	72739	72972	72928	72709	73717	73412
ROCKY MT-AREA	29176	29003	30080	31108	31337	32252	33083	34232	35167	36391	37709
ARIZ-N.MEX	34896	41314	43089	43431	42256	44667	45904	46929	47665	49036	50663
CALIF-SO.NEV	30205	31701	32641	31471	31629	32411	33018	31525	32661	32878	34402
TOTAL(U.S.)	1376401	1397836	1398493	1413049	1441455	1457629	1486934	1503311	1523222	1548591	1583979
NERC-CANADA											
MAPP	8243	8143	9202	9473	9680	10100	10829	11062	11251	11593	12196
NPCC	30485	27790	25739	24838	22266	21969	21166	23443	28253	29913	38962
NEW BRUNSWICK	1107	1280	1614	2652	2833	2788	2922	3767	5944	5998	6016
NOVA SCOTIA	5421	5426	5713	5856	5966	6808	7408	7647	8171	8509	9059
ONTARIO	23957	21084	18412	16330	13467	12373	10836	12029	14138	15406	23887
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	28696	29650	30460	31668	33766	35628	37277	37994	39540	41565	43275
TOTAL(CANADA)	67424	65583	65401	65979	65712	67697	69272	72499	79044	83071	94433
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1443825	1463419	1463894	1479028	1507167	1525326	1556206	1575810	1602266	1631662	1678412

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY NUCLEAR - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	17145	27700	38840	40270	41550	42410	43460	44100	44640	45070	45430
ERCOT	0	1839	7126	18942	24076	27024	27753	28141	27778	26806	26497
MAAC	61210	63640	66049	65017	68590	70942	75144	72939	76912	76373	76055
MAIN	58471	70302	79043	81834	82658	86153	84201	85547	87176	85006	87236
CMNWLTH EDISON	40262	48109	55200	58680	58205	61570	60720	61120	62680	62380	62620
EAST MISSOURI	7170	7095	8588	7219	7282	8521	7372	7148	8486	6582	7300
S CENT ILLINOIS	0	4117	4070	5006	6117	4897	4911	6117	4907	4896	6094
WIS-UPPER MICH	11039	10981	11185	10929	11054	11165	11198	11162	11103	11148	11222
MAPP	25125	25008	24757	25523	24099	23803	25767	24288	24249	25686	24557
NPCC	51782	59448	76517	73878	79306	76253	79600	78469	78718	77870	81722
NEW YORK	22086	24662	31401	31627	32713	33042	33429	33398	33486	33509	33709
NEW ENGLAND	29696	34786	45116	42251	46593	43211	46171	45071	45232	44361	48013
SERC	119869	145312	166697	183330	180637	187995	190193	185883	194975	196068	194453
FLORIDA	23563	24504	28294	26662	25908	27099	27748	24555	28248	26662	25991
SOUTHERN	19336	26908	30502	34632	33502	33824	34247	34158	33825	34145	34259
TVA	-230	3241	19252	28017	31934	34680	36260	38062	41071	41907	43455
VACAR	77200	90659	88649	94019	89293	92392	91938	89108	91831	93354	90748
SPP	34841	35004	36241	36272	38052	37867	36812	38488	37704	35889	38657
SOUTHEAST	28310	29293	29622	29650	31431	31240	30224	31848	31067	29267	32027
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	6531	5711	6619	6622	6621	6627	6588	6640	6637	6622	6630
WSCC	52949	62284	70391	72884	72701	73780	72160	70412	64650	70332	66720
NW POOL	15530	14634	17338	17275	17275	17275	17384	14752	12772	12772	12851
ROCKY MT-AREA	50	1317	1317	1007	1007	336	0	0	0	0	0
ARIZ-N.MEX	7801	11483	14385	15874	16297	16591	16778	16679	16624	16736	16725
CALIF-SO.NEV	29568	34850	37351	38728	38122	39578	37998	38981	35254	40824	37144
TOTAL(U.S.)	421392	490537	565661	597950	611669	626227	635090	628267	636802	639100	641327
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	67639	75298	84822	91562	98583	104067	110267	114594	115525	116717	109398
NEW BRUNSWICK	5226	4471	4649	4448	4483	4483	4482	4483	4484	4484	4484
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	58213	65527	75273	82214	89100	94584	100885	105111	106141	107133	100014
QUEBEC	4200	5300	4900	4900	5000	5000	4900	5000	4900	5100	4900
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	67639	75298	84822	91562	98583	104067	110267	114594	115525	116717	109398
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	489031	565835	650483	689512	710252	730294	745357	742861	752327	755817	750725

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY HYDRO[a] - Millions kWh

	ACTUAL[b]	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	2460	2400	2400	2580	2640	2640	2640	2640	2640	2640	2640
ERCOT	548	268	268	268	268	268	268	268	268	268	268
MAAC	3971	3672	3748	3748	3748	3748	3749	3748	3749	3748	3748
MAIN	3162	2190	2201	2202	2201	2201	2201	2201	2202	2202	2201
CMNWLTH EDISON	9	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	1771	786	786	786	786	786	786	786	786	786	786
S CENT ILLINOIS	9	10	10	10	10	10	10	10	10	10	10
WIS-UPPER MICH	1373	1394	1405	1406	1405	1405	1405	1405	1406	1406	1405
MAPP	13347	12982	13353	13271	13267	13273	13477	13504	13504	13505	13507
NPCC	35349	35372	33130	31149	29025	29219	29464	29465	29491	30145	30217
NEW YORK	30317	30624	28409	26427	24324	24509	24704	24757	24783	25423	25494
NEW ENGLAND	5032	4748	4721	4722	4701	4710	4760	4708	4708	4722	4723
SERC	19178	32711	32723	32724	32908	32909	32909	32908	32909	32908	32909
FLORIDA	224	254	254	254	254	254	254	254	254	254	254
SOUTHERN[c]	4688	8468	8469	8470	8654	8655	8655	8654	8655	8654	8655
TVA	11394	18497	18497	18497	18497	18497	18497	18497	18497	18497	18497
VACAR	2872	5492	5503	5503	5503	5503	5503	5503	5503	5503	5503
SPP	7651	5689	5689	5816	5816	5816	5816	5816	5816	5816	5816
SOUTHEAST	167	167	167	294	294	294	294	294	294	294	294
WEST CENTRAL	7399	5462	5462	5462	5462	5462	5462	5462	5462	5462	5462
NORTHERN	85	60	60	60	60	60	60	60	60	60	60
WSCC	206221	154462	155604	156532	157476	157873	158413	158409	159023	158997	159475
NW POOL	141134	112334	113000	112747	112746	112747	113332	113021	113052	113146	113486
ROCKY MT-AREA	13375	10388	10733	10958	11213	11348	11340	11347	11463	11538	11538
ARIZ-N.MEX	3870	2737	2863	3019	3022	3015	2915	2981	3013	3011	3005
CALIF-SO.NEV	47842	29003	29008	29808	30495	30763	30806	31060	31495	31302	31446
TOTAL(U.S.)	291887	249746	249116	248290	247349	247947	248937	248959	249602	250229	250781
NERC-CANADA											
MAPP	26774	26281	25687	24848	26253	29915	31268	31633	31855	31855	31855
NPCC	150236	156311	158735	165218	170925	174925	175703	173941	175560	180933	183533
NEW BRUNSWICK	2931	2695	2695	2695	2695	2695	2695	2695	2695	2695	2695
NOVA SCOTIA	968	953	975	974	974	974	974	974	974	974	974
ONTARIO	37176	37196	36328	35749	35956	36056	36134	35072	36191	36364	36364
QUEBEC	109161	115467	118737	125800	131300	135200	135900	135200	135700	140900	143500
WSCC	44578	45133	46203	46979	48074	48138	47937	47698	47516	47354	47196
TOTAL(CANADA)	221588	227725	230625	237045	245252	252978	254908	253272	254931	260142	262584
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	513475	477471	479741	485335	492601	500925	503845	502231	504533	510371	513365

a) Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.
b) Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.
c) Average hydro conditions.

APPENDIX B

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL AND GAS[a] - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	1066	962	962	962	962	842	842	842	842	842	990
ERCOT	97997	92855	85941	79009	78919	78538	79310	82317	81666	87022	88382
MAAC	20431	16893	16595	15480	13228	12610	11402	12857	13513	15713	17248
MAIN	2667	1000	713	735	788	747	1200	1380	1700	2383	2654
CMNWLTH EDISON	2348	615	335	335	425	405	810	930	1025	1635	1885
EAST MISSOURI	62	114	147	142	123	132	135	103	163	188	228
S CENT ILLINOIS	63	113	76	66	86	89	86	149	277	254	226
WIS-UPPER MICH	194	158	155	192	154	121	169	198	235	306	315
MAPP	637	361	289	418	437	513	538	642	511	577	622
NPCC	83556	70406	54025	58238	52111	54198	52594	57509	60107	64966	68195
NEW YORK	44429	37886	32411	34339	33634	35165	33953	36159	37770	38537	42063
NEW ENGLAND	39117	32520	21614	23899	18477	19033	18641	21350	22337	26429	26132
SERC	51091	52469	45231	42348	43865	45722	47231	51179	51836	60808	63594
FLORIDA	46569	50400	42542	40905	42250	43041	43893	46911	46104	52102	55409
SOUTHERN	1592	450	432	441	400	454	299	343	395	339	364
TVA	22	600	209	132	129	145	152	133	129	151	206
VACAR	2908	1019	2048	870	1086	2082	2887	3792	5208	8216	7615
SPP	64870	60546	59466	58793	57551	59934	65176	65142	67367	71288	71750
SOUTHEAST	39911	37249	36085	35749	33861	35796	39542	38090	39289	41878	41092
WEST CENTRAL	24159	22058	22095	21679	22201	22419	23655	24545	25496	26402	27372
NORTHERN	800	1239	1286	1365	1489	1719	1979	2507	2582	3008	3286
WSCC	48413	71009	54793	43439	45662	45740	51373	56122	62123	60693	67680
NW POOL	286	925	1073	1296	1261	2407	4472	4460	4460	4416	4499
ROCKY MT-AREA	344	450	463	463	472	495	538	570	660	497	408
ARIZ-N.MEX	4631	4057	4232	3916	3994	3473	3856	4255	4783	5218	5178
CALIF-SO.NEV	43152	65577	49025	37764	39935	39365	42507	46837	52220	50562	57595
TOTAL(U.S.)	370728	366501	318015	299422	293523	298844	309666	327990	339665	364292	381115
NERC-CANADA											
MAPP	241	206	417	625	847	642	340	442	475	460	297
NPCC	2625	1925	2041	1947	2131	2095	2179	2327	3187	4317	5291
NEW BRUNSWICK	1990	1126	1286	888	873	993	1219	1321	2452	3627	4959
NOVA SCOTIA	624	786	742	1046	1245	1089	947	998	723	660	243
ONTARIO	11	13	13	13	13	13	13	8	12	30	89
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	886	2160	3142	3402	3090	3618	5056	6606	7174	6947	7136
TOTAL(CANADA)	3752	4291	5600	5974	6068	6355	7575	9375	10836	11724	12724
NERC-MEXICO											
WSCC	1090	1332	1257	1526	1769	2031	2314	2265	2150	2387	2741
TOTAL(MEXICO)	1090	1332	1257	1526	1769	2031	2314	2265	2150	2387	2741
NERC-TOTAL	375570	372124	324872	306922	301360	307230	319555	339630	352651	378403	396580

a) Coal-fired, gas-fired, and dual fuel (oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.

APPENDIX B

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL[a] - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	753	772	772	772	772	772	772	772	772	772	785
ERCOT	176	465	648	721	860	894	1011	1077	1133	1216	1279
MAAC	16939	8888	9299	8539	6733	6098	5651	6341	6812	8977	10177
MAIN	2038	804	467	524	616	573	970	1085	1281	1903	2136
CMNWLTH EDISON	1880	560	230	280	415	385	780	890	980	1550	1780
EAST MISSOURI	34	64	85	76	73	71	79	57	80	138	178
S CENT ILLINOIS	51	86	67	54	60	71	71	110	199	188	148
WIS-UPPER MICH	73	94	85	114	68	46	40	28	22	27	30
MAPP	425	79	58	166	147	183	193	280	210	246	247
NPCC	69622	57784	42183	47518	42135	43977	43792	49009	51104	56055	57761
NEW YORK	31980	25886	21011	24139	24884	27265	27103	30259	32270	33537	35703
NEW ENGLAND	37642	31898	21172	23379	17251	16712	16689	18750	18834	22518	22058
SERC	32657	33103	24247	22168	22967	24010	24712	27028	26882	31271	34540
FLORIDA	29549	31341	22336	21290	22068	22934	23763	26235	25925	30399	33463
SOUTHERN	259	191	167	148	118	154	10	35	53	37	49
TVA	22	600	209	132	129	145	152	133	129	151	206
VACAR	2827	971	1535	598	652	777	787	625	775	684	822
SPP	828	843	974	903	1053	1580	1430	4849	5779	6426	5790
SOUTHEAST	791	791	931	836	968	1497	1335	4748	5680	6309	5666
WEST CENTRAL	14	19	18	22	44	44	45	47	48	49	51
NORTHERN	23	33	25	45	41	39	50	54	51	68	73
WSCC	3352	2829	2805	2424	2965	2959	3164	3293	3320	3375	3424
NW POOL	173	0	0	0	0	131	229	229	229	229	229
ROCKY MT-AREA	23	13	13	24	27	35	45	56	76	88	101
ARIZ-N.MEX	39	181	90	61	50	51	70	116	157	203	253
CALIF-SO.NEV	3117	2635	2702	2339	2888	2742	2820	2892	2858	2855	2841
TOTAL(U.S.)	126790	105567	81453	83735	78248	81046	81695	93734	97293	110241	116139
NERC-CANADA											
MAPP	39	32	22	22	21	16	13	12	13	13	14
NPCC	2625	1925	2041	1947	2131	2095	2179	2327	3187	4317	5291
NEW BRUNSWICK	1990	1126	1286	888	873	993	1219	1321	2452	3627	4959
NOVA SCOTIA	624	786	742	1046	1245	1089	947	998	723	660	243
ONTARIO	11	13	13	13	13	13	13	8	12	30	89
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	2664	1957	2063	1969	2152	2111	2192	2339	3200	4330	5305
NERC-MEXICO											
WSCC	1090	1332	1257	1526	1769	2031	2314	2265	2150	2387	2741
TOTAL(MEXICO)	1090	1332	1257	1526	1769	2031	2314	2265	2150	2387	2741
NERC-TOTAL	130544	108856	84773	87230	82169	85188	86201	98338	102643	116958	124185

a) Oil-fired steam, combustion turbine (and diesel), and combined cycle units.

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL-STEAM - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	714	740	740	740	740	740	740	740	740	740	740
ERCOT	173	461	466	463	466	464	465	465	465	465	465
MAAC	16160	8612	9050	8272	6515	5920	5496	6182	6645	8774	9898
MAIN	2007	687	343	370	514	493	888	1031	1203	1810	2017
CMNWLTH EDISON	1861	560	230	275	410	375	770	875	960	1515	1735
EAST MISSOURI	33	51	49	54	52	53	52	53	53	115	150
S CENT ILLINOIS	51	76	64	41	52	65	66	103	190	180	132
WIS-UPPER MICH	62	0	0	0	0	0	0	0	0	0	0
MAPP	373	25	29	72	68	82	84	98	84	100	92
NPCC	68462	54963	40488	44906	40570	42644	43424	48541	50562	55286	57141
NEW YORK	31533	23820	19448	21665	23360	25953	26757	29890	31796	33019	35263
NEW ENGLAND	36929	31143	21040	23241	17210	16691	16667	18651	18766	22267	21878
SERC	32210	31852	23584	21636	22379	23329	24015	26151	26034	29616	32257
FLORIDA	29175	30728	21962	20940	21682	22514	23306	25599	25326	28990	31617
SOUTHERN	250	188	164	147	116	153	8	24	24	27	31
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	2785	936	1458	549	581	662	701	528	684	599	609
SPP	816	816	947	859	1013	1534	1337	4785	5680	6273	5493
SOUTHEAST	784	784	923	827	960	1480	1284	4729	5623	6214	5428
WEST CENTRAL	14	19	18	22	43	44	45	46	47	48	50
NORTHERN	18	13	6	10	10	10	8	10	10	11	15
WSCC	3093	2172	1688	903	1233	1071	1164	1285	1284	1319	1354
NW POOL	172	0	0	0	0	18	18	18	18	18	18
ROCKY MT-AREA	16	12	12	15	15	15	15	15	15	15	15
ARIZ-N.MEX	39	181	90	60	50	51	70	116	157	199	253
CALIF-SO.NEV	2866	1979	1586	828	1168	987	1061	1136	1094	1087	1068
TOTAL(U.S.)	124008	100328	77335	78221	73498	76277	77613	89278	92697	104383	109457
NERC-CANADA											
MAPP	0	11	0	0	0	0	0	0	0	0	0
NPCC	2614	1912	2028	1934	2118	2082	2166	2319	3175	4287	5202
NEW BRUNSWICK	1990	1126	1286	888	873	993	1219	1321	2452	3627	4959
NOVA SCOTIA	624	786	742	1046	1245	1089	947	998	723	660	243
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	2614	1923	2028	1934	2118	2082	2166	2319	3175	4287	5202
NERC-MEXICO											
WSCC	1075	1312	1257	1472	1769	2031	2314	2265	2150	2387	2741
TOTAL(MEXICO)	1075	1312	1257	1472	1769	2031	2314	2265	2150	2387	2741
NERC-TOTAL	127697	103563	80620	81627	77385	80390	82093	93862	98022	111057	117400

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL-COMBUSTION TURBINE[a] - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	37	30	30	30	30	30	30	30	30	30	30
ERCOT	2	0	182	256	392	427	543	609	665	748	812
MAAC	636	181	161	177	125	102	88	84	90	117	186
MAIN	31	117	124	154	102	80	82	54	78	93	119
CMNWLTH EDISON	19	0	0	5	5	10	10	15	20	35	45
EAST MISSOURI	1	13	36	22	21	18	27	4	27	23	28
S CENT ILLINOIS	0	10	3	13	8	6	5	7	9	8	16
WIS-UPPER MICH	11	94	85	114	68	46	40	28	22	27	30
MAPP	51	53	28	93	78	100	108	180	124	144	153
NPCC	640	2202	1572	2493	1531	1316	350	407	495	572	489
NEW YORK	447	2066	1563	2474	1524	1312	346	369	474	518	440
NEW ENGLAND	193	136	9	19	7	4	4	38	21	54	49
SERC	447	1031	651	522	539	629	646	843	817	875	1225
FLORIDA	374	393	362	340	337	368	406	602	568	629	788
SOUTHERN	9	3	3	1	2	1	2	11	29	10	18
TVA	22	600	209	132	129	145	152	133	129	151	206
VACAR	42	35	77	49	71	115	86	97	91	85	213
SPP	12	27	27	44	40	46	93	64	99	149	296
SOUTHEAST	7	7	8	9	8	17	51	19	57	95	238
WEST CENTRAL	0	0	0	0	1	0	0	1	1	1	1
NORTHERN	5	20	19	35	31	29	42	44	41	53	57
WSCC	239	652	1111	1516	1727	1883	1995	2003	2025	2044	2058
NW POOL	1	0	0	0	0	113	211	211	211	211	211
ROCKY MT-AREA	7	1	1	9	12	20	30	41	61	73	86
ARIZ-N.MEX	0	0	0	1	0	0	0	0	0	4	0
CALIF-SO.NEV	231	651	1110	1506	1715	1750	1754	1751	1753	1756	1761
TOTAL(U.S.)	2095	4293	3886	5285	4564	4613	3935	4274	4423	4772	5368
NERC-CANADA											
MAPP	39	21	22	22	21	16	13	12	13	13	14
NPCC	11	13	13	13	13	13	13	8	12	30	89
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	11	13	13	13	13	13	13	8	12	30	89
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	50	34	35	35	34	29	26	20	25	43	103
NERC-MEXICO											
WSCC	15	20	0	54	0	0	0	0	0	0	0
TOTAL(MEXICO)	15	20	0	54	0	0	0	0	0	0	0
NERC-TOTAL	2163	4347	3921	5374	4598	4642	3961	4294	4448	4815	5471

a) Includes diesel units.

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL-COMBINED CYCLE - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	2	2	2	2	2	2	2	2	2	2	15
ERCOT	1	4	0	2	2	3	3	3	3	3	2
MAAC	143	95	88	90	93	76	67	75	77	86	
MAIN	0	0	0	0	0	0	0	0	0	0	2
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	1	1	1	1	1	1	1	2	2	2	2
NPCC	520	619	123	119	34	17	18	61	47	197	131
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	520	619	123	119	34	17	18	61	47	197	131
SERC	0	220	12	10	49	52	51	34	31	780	1058
FLORIDA	0	220	12	10	49	52	51	34	31	780	1058
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	4	1
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	4	1
WSCC	20	5	6	5	5	5	5	5	11	12	12
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	20	5	6	5	5	5	5	5	11	12	12
TOTAL(U.S.)	687	946	232	229	186	156	147	182	173	1086	1314
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	687	946	232	229	186	156	147	182	173	1086	1314

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GAS[a] - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	313	190	190	190	190	70	70	70	70	70	205
ERCOT	97821	92390	85293	78288	78059	77644	78299	81240	80533	85806	87103
MAAC	3492	8005	7296	6941	6495	6512	5751	6516	6701	6736	7071
MAIN	629	196	246	211	172	174	230	295	419	480	518
CMNWLTH EDISON	468	55	105	55	10	20	30	40	45	85	105
EAST MISSOURI	28	50	62	66	50	61	56	46	83	50	50
S CENT ILLINOIS	12	27	9	12	26	18	15	39	78	66	78
WIS-UPPER MICH	121	64	70	78	86	75	129	170	213	279	285
MAPP	212	282	231	252	290	330	345	362	301	331	375
NPCC	13934	12622	11842	10720	9976	10221	8802	8500	9003	8911	10434
NEW YORK	12459	12000	11400	10200	8750	7900	6850	5900	5500	5000	6360
NEW ENGLAND	1475	622	442	520	1226	2321	1952	2600	3503	3911	4074
SERC	18434	19366	20984	20180	20898	21712	22519	24151	24954	29537	29054
FLORIDA	17020	19059	20206	19615	20182	20107	20130	20676	20179	21703	21946
SOUTHERN	1333	259	265	293	282	300	289	308	342	302	315
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	81	48	513	272	434	1305	2100	3167	4433	7532	6793
SPP	64042	59703	58492	57890	56498	58354	63746	60293	61588	64862	65960
SOUTHEAST	39120	36458	35154	34913	32893	34299	38207	33342	33609	35569	35426
WEST CENTRAL	24145	22039	22077	21657	22157	22375	23610	24498	25448	26353	27321
NORTHERN	777	1206	1261	1320	1448	1680	1929	2453	2531	2940	3213
WSCC	45061	68180	51988	41015	42697	42781	48209	52829	58803	57318	64256
NW POOL	113	925	1073	1296	1261	2276	4243	4231	4231	4187	4270
ROCKY MT-AREA	321	437	450	439	445	460	493	514	584	409	307
ARIZ-N.MEX	4592	3876	4142	3855	3944	3422	3786	4139	4626	5015	4925
CALIF-SO.NEV	40035	62942	46323	35425	37047	36623	39687	43945	49362	47707	54754
TOTAL(U.S.)	243938	260934	236562	215687	215275	217798	227971	234256	242372	254051	264976
NERC-CANADA											
MAPP	202	174	395	603	826	626	327	430	462	447	283
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	886	2160	3142	3402	3090	3618	5056	6606	7174	6947	7136
TOTAL(CANADA)	1088	2334	3537	4005	3916	4244	5383	7036	7636	7394	7419
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	245026	263268	240099	219692	219191	222042	233354	241292	250008	261445	272395

a) Gas-fired steam, combustion turbine (and diesel), and combined cycle units.

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GAS-STEAM - Million kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	254	150	150	150	150	30	30	30	30	30	165
ERCOT	94512	88851	81482	74935	74413	73642	74088	76601	75733	80642	81692
MAAC	2586	6250	5601	5351	5023	5246	4659	5309	5447	5227	5436
MAIN	594	156	199	150	114	108	112	137	214	182	189
CMNWLTH EDISON	452	50	100	45	0	0	0	0	0	0	0
EAST MISSOURI	28	49	61	65	49	60	55	45	82	49	49
S CENT ILLINOIS	9	23	3	8	17	11	10	36	68	58	57
WIS-UPPER MICH	105	34	35	32	48	37	47	56	64	75	83
MAPP	171	168	143	167	189	213	240	242	176	206	225
NPCC	13174	11800	11300	10200	8750	7900	6850	5900	5500	5000	5000
NEW YORK	12187	11800	11300	10200	8750	7900	6850	5900	5500	5000	5000
NEW ENGLAND	987	0	0	0	0	0	0	0	0	0	0
SERC	15225	16962	18395	17783	18113	18110	18044	18579	18182	13867	13055
FLORIDA	14057	16928	17922	17558	17897	17834	17905	18445	17990	13657	12891
SOUTHERN	1100	31	36	33	22	34	9	10	12	15	27
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	68	3	437	192	194	242	130	124	180	195	137
SPP	61776	55863	54629	54254	52769	54602	59880	56252	57272	60562	61439
SOUTHEAST	39080	36418	35107	34887	32845	34240	38133	33173	33433	35418	35241
WEST CENTRAL	21949	18282	18306	18111	18563	18785	19939	20782	21474	22406	23257
NORTHERN	747	1163	1216	1256	1361	1577	1808	2297	2365	2738	2941
WSCC	41890	65388	49333	38412	39543	38242	41296	45769	51465	49884	56876
NW POOL	108	925	1073	1296	1261	1305	1291	1305	1305	1261	1318
ROCKY MT-AREA	317	431	445	434	442	451	460	470	455	331	286
ARIZ-N.MEX	2665	2381	2854	2619	2599	2238	2539	2713	3248	3434	3476
CALIF-SO.NEV	38800	61651	44961	34063	35241	34248	37006	41281	46457	44858	51796
TOTAL(U.S.)	230182	245588	221232	201402	199064	198093	205199	208819	214019	215600	224077
NERC-CANADA											
MAPP	-155	110	225	294	365	295	138	178	208	219	120
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	316	1670	2545	2750	2485	3085	4505	5989	6475	6271	6389
TOTAL(CANADA)	471	1780	2770	3044	2850	3380	4643	6167	6683	6490	6509
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	230653	247368	224002	204446	201914	201473	209842	214986	220702	222090	230586

APPENDIX B

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GAS-COMBUSTION TURBINE[a] - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	59	40	40	40	40	40	40	40	40	40	40
ERCOT	221	20	202	272	443	815	945	1012	1054	1146	1358
MAAC	617	898	905	782	638	586	487	530	558	732	800
MAIN	35	40	47	61	58	66	118	158	205	298	329
CMNWLTH EDISON	16	5	5	10	10	20	30	40	45	85	105
EAST MISSOURI	0	1	1	1	1	1	1	1	1	1	1
S CENT ILLINOIS	3	4	6	4	9	7	5	3	10	8	21
WIS-UPPER MICH	16	30	35	46	38	38	82	114	149	204	202
MAPP	41	114	68	65	101	117	105	120	125	125	150
NPCC	279	200	100	0	0	0	0	0	0	15	11
NEW YORK	272	200	100	0	0	0	0	0	0	0	0
NEW ENGLAND	7	0	0	0	0	0	0	0	0	15	11
SERC	693	358	392	410	440	542	431	498	694	545	608
FLORIDA	448	85	87	70	88	85	89	105	157	133	165
SOUTHERN	233	228	229	260	260	266	280	298	330	287	288
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	12	45	76	80	92	191	62	95	207	125	155
SPP	85	70	52	52	73	109	243	196	306	269	414
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	63	32	10	3	8	17	133	52	146	76	169
NORTHERN	22	38	42	49	65	92	110	144	160	193	245
WSCC	256	568	615	603	453	638	876	921	1034	956	914
NW POOL	5	0	0	0	0	326	536	526	526	526	536
ROCKY MT-AREA	4	6	5	5	3	9	33	44	129	78	21
ARIZ-N.MEX	127	118	100	83	103	78	106	132	165	143	165
CALIF-SO.NEV	120	444	510	515	347	225	201	219	214	209	192
TOTAL(U.S.)	2286	2308	2441	2305	2246	2913	3245	3475	4016	4126	4624
NERC-CANADA											
MAPP	47	64	170	309	461	331	189	252	254	228	163
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	570	490	597	652	605	533	551	617	699	676	747
TOTAL(CANADA)	617	554	767	961	1066	864	740	869	953	904	910
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	2903	2862	3208	3266	3312	3777	3985	4344	4969	5030	5534

---

a) Includes diesel units.

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GAS-COMBINED CYCLE - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	3088	3519	3609	3081	3203	3187	3266	3627	3746	4018	4053
MAAC	289	857	790	808	834	680	605	677	696	777	835
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	481	622	442	520	1226	2321	1952	2600	3503	3896	5423
NEW YORK	0	0	0	0	0	0	0	0	0	0	1360
NEW ENGLAND	481	622	442	520	1226	2321	1952	2600	3503	3896	4063
SERC	2516	2046	2197	1987	2345	3060	4044	5074	6078	15125	15391
FLORIDA	2515	2046	2197	1987	2197	2188	2136	2126	2032	7913	8890
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	1	0	0	0	148	872	1908	2948	4046	7212	6501
SPP	2181	3770	3811	3584	3656	3643	3623	3845	4010	4031	4107
SOUTHEAST	40	40	47	26	58	59	74	169	176	151	185
WEST CENTRAL	2133	3725	3761	3543	3585	3573	3538	3664	3828	3871	3895
NORTHERN	8	5	3	15	13	11	11	12	6	9	27
WSCC	2915	2224	2040	2000	2701	3901	6037	6139	6304	6478	6466
NW POOL	0	0	0	0	0	645	2416	2400	2400	2400	2416
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	1800	1377	1188	1153	1242	1106	1141	1294	1213	1438	1284
CALIF-SO.NEV	1115	847	852	847	1459	2150	2480	2445	2691	2640	2766
TOTAL(U.S.)	11470	13038	12889	11980	13965	16792	19527	21962	24337	34325	36275
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	11470	13038	12889	11980	13965	16792	19527	21962	24337	34325	36275

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GEOTHERMAL - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	13341	12545	13732	15133	16851	17138	17287	17687	17891	18978	19294
NW POOL	289	239	347	357	381	381	437	488	540	591	647
ROCKY MT-AREA	0	0	0	0	0	40	53	53	53	53	53
ARIZ-N.MEX	0	0	29	42	42	42	42	42	42	42	42
CALIF-SO.NEV	13052	12306	13356	14734	16428	16675	16755	17104	17256	18292	18552
TOTAL(U.S.)	13341	12545	13732	15133	16851	17138	17287	17687	17891	18978	19294
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	3100	3699	4084	4054	4054	4054	4054	4397	4827	4924	4924
TOTAL(MEXICO)	3100	3699	4084	4054	4054	4054	4054	4397	4827	4924	4924
NERC-TOTAL	16441	16244	17816	19187	20905	21192	21341	22084	22718	23902	24218

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY ALL OTHER FUELS - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT[a]	0	0	0	27	105	316	658	973	983	982	973
MAAC[b]	1647	2053	5057	10316	15619	18605	19631	22970	23098	23341	21968
MAIN	4	579	652	733	977	1129	1265	1345	1486	1566	1713
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	569	571	568	564	567	561	564	564	565	570
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	4	10	81	165	413	562	704	781	922	1001	1143
MAPP[c]	386	386	431	766	750	746	756	746	794	770	758
NPCC	2890	4306	8303	9887	12711	11861	12521	12678	13061	13551	13968
NEW YORK[d]	1351	2383	3671	4432	6012	5163	5806	5969	6355	6817	7226
NEW ENGLAND	1539	1923	4632	5455	6699	6698	6715	6709	6706	6734	6742
SERC[e]	3387	6572	9535	11483	12544	15060	14740	14803	15432	15485	16195
FLORIDA[f]	327	1829	3138	3748	4391	4604	4704	4937	5008	5177	5421
SOUTHERN	552	1430	1595	774	-24	464	-48	-59	-76	-40	-49
TVA	703	838	779	802	760	764	240	18	19	24	42
VACAR[e]	1805	2475	4023	6159	7417	9228	9844	9907	10481	10324	10781
SPP	774	1025	1438	1437	1437	1437	1438	1437	1437	1437	1452
SOUTHEAST	466	712	1124	1124	1124	1124	1124	1124	1124	1124	1138
WEST CENTRAL	308	313	314	313	313	313	314	313	313	313	314
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC[d]	12363	17490	29499	35619	40185	40943	41807	48207	55076	57623	60954
NW POOL[g]	1420	1305	1827	2066	2084	2138	2217	8025	13810	15385	17673
ROCKY MT-AREA	43	293	864	1011	1959	1959	1959	1959	1959	1959	1959
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	10900	15892	26808	32542	36142	36846	37631	38223	39307	40279	41322
TOTAL(U.S.)	21451	32411	54915	70268	84328	90097	92816	103159	111367	114755	117981
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	35	32	32	36	36	36	495	876	1086	1296	1506
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA[h]	35	32	32	36	36	36	36	36	36	36	36
ONTARIO	0	0	0	0	0	0	459	840	1050	1260	1470
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	191	0	0	18	87	161	265	582	1804	3182	4624
TOTAL(CANADA)	226	32	32	54	123	197	760	1458	2890	4478	6130
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	21677	32443	54947	70322	84451	90294	93576	104617	114257	119233	124111

a) Refuse and undesignated. b) Includes Bethlehem Steel, Delaware City 1&2, and non-utility generation.
c) Wood and waste heat. d) Includes independent power producers. f) Cogeneration.
e) Other energy can not be specifically identified but reflects the increasing uncertainty of future demand and the difficulty of accurately gauging the effect of and potential for load management and purchases from cogenerators and small power produc
g) The U.S. portion of the Northwest Power Pool Area is projecting an energy deficiency under adverse hydro conditions for 1992 through 1996. Included are imports that would be necessary from systems outside NWPP (U.S.) from 1992 to 1996: 28, 5841, 11626, 13219, and 15484 millions kWh, respectively. h) Tidal power and Province purchases.

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

ACTUAL AND PROJECTED ELECTRICAL ENERGY REQUIREMENTS (LOAD) FOR PUMPED STORAGE - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	5046	5490	5490	5490	5490	5490	5490	5490	5490	5490	5490
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	3063	2670	2632	2767	2893	2939	2978	2993	3010	2971	2996
MAIN	45	34	36	23	53	76	84	65	106	115	154
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	45	34	36	23	53	76	84	65	106	115	154
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4798	3554	3656	3583	3794	3526	3633	3390	3639	3469	3431
NEW YORK	2934	1466	1235	1240	1071	947	1079	1020	1122	827	1005
NEW ENGLAND	1864	2088	2421	2343	2723	2579	2554	2370	2517	2642	2426
SERC	6663	5933	5039	5027	4877	5465	5841	5777	5610	4893	6896
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	902	548	533	519	559	528	591	579	589	597	592
TVA	1766	2025	1338	1162	1242	1277	1334	1302	1299	1412	1687
VACAR	3995	3360	3168	3346	3076	3660	3916	3896	3722	2884	4617
SPP	156	96	96	96	96	96	96	96	96	96	96
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	156	96	96	96	96	96	96	96	96	96	96
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	2467	3380	2320	3135	3148	2983	2896	2711	2809	2924	2884
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	214	388	452	435	463	428	416	435	437	402	416
ARIZ-N.MEX	345	312	254	206	171	109	126	123	117	109	109
CALIF-SO.NEV	1908	2680	1614	2494	2514	2446	2354	2153	2255	2413	2359
TOTAL(U.S.)	22238	21157	19269	20121	20351	20595	21018	20522	20760	19958	21947
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	22238	21157	19269	20121	20351	20595	21018	20522	20760	19958	21947

APPENDIX B
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED (OUTPUT) BY PUMPED STORAGE - Millions kWh

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	3753	4080	4080	4080	4080	4080	4080	4080	4080	4080	4080
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	2132	1828	1801	1893	1980	2012	2038	2049	2060	2034	2051
MAIN	13	18	18	12	29	40	46	34	58	61	82
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	13	18	18	12	29	40	46	34	58	61	82
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	3325	2494	2564	2508	2660	2476	2548	2374	2552	2433	2437
NEW YORK	1953	1026	865	868	750	663	755	714	785	579	736
NEW ENGLAND	1372	1468	1699	1640	1910	1813	1793	1660	1767	1854	1701
SERC	5142	4626	3919	3924	3795	4254	4527	4465	4324	3760	5304
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	639	380	370	361	388	367	409	401	408	413	410
TVA	1388	1568	1036	900	962	989	1033	1008	1006	1094	1307
VACAR	3115	2678	2513	2663	2445	2898	3085	3056	2910	2253	3587
SPP	77	50	50	50	50	50	50	50	50	50	50
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	77	50	50	50	50	50	50	50	50	50	50
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC[a]	3407	4135	4295	4266	4249	4151	4021	3961	3934	3953	3931
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	166	289	335	315	335	311	302	315	317	292	303
ARIZ-N.MEX	277	218	177	144	120	76	88	86	82	76	76
CALIF-SO.NEV	2964	3628	3783	3807	3794	3764	3631	3560	3535	3585	3552
TOTAL(U.S.)	17849	17231	16727	16733	16843	17063	17310	17013	17058	16371	17935
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	17849	17231	16727	16733	16843	17063	17310	17013	17058	16371	17935

a) Pumped storage generation (output) is greater than pumped storage load (input) due to pumped storage facilities being in combination with California reservoirs.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
WESTERN LIGNITE (STEAM)[a] - 1000's TONS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR[b]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
ERCOT	38796	42972	43796	43577	45344	46906	47747	50303	53992	54942	56028
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	19815	19065	20914	21430	21681	21976	20659	21174	21283	21410	23121
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	4051	5265	5331	5341	5301	5343	5237	5484	5501	5502	5518
SOUTHEAST	1172	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
WEST CENTRAL	2879	3890	3956	3966	3926	3968	3862	4109	4126	4127	4143
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	62662	67302	70041	70348	72326	74225	73643	76961	80776	81854	84667
NERC-CANADA											
MAPP	7759	7852	8402	8671	8874	9148	9633	9839	10020	10305	10771
NPCC	1262	1183	1065	1084	1073	1074	1068	1100	1100	1100	1100
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO[c]	1262	1183	1065	1084	1073	1074	1068	1100	1100	1100	1100
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	9021	9035	9467	9755	9947	10222	10701	10939	11120	11405	11871
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	71683	76337	79508	80103	82273	84447	84344	87900	91896	93259	96538

a) Coal mined west of the Mississippi River.
b) Coal sources indeterminate for ECAR. See Table 24 for ECAR total coal figures.
c) Lignite from western Canada.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
WESTERN COAL[a](STEAM) - 1000's TONS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR[b]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
ERCOT	18227	18683	19613	19867	20342	20884	22854	23301	25680	28731	32727
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	20656	22437	20825	19877	23285	22366	24194	24745	24245	25710	26409
CMNWLTH EDISON	10813	9250	7430	6580	7300	6610	7530	7960	7920	8550	8950
EAST MISSOURI	67	88	88	138	3038	2588	3338	3188	2688	3438	3438
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	9776	13099	13307	13159	12947	13168	13326	13597	13637	13722	14021
MAPP	18600	29781	31772	30297	30954	31523	31298	32042	32400	33005	33142
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	1274	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	1274	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	62129	63102	64128	65245	67926	68117	69062	69599	71770	72890	74034
SOUTHEAST	16672	15476	15437	15467	15166	15300	15971	16086	16448	16628	16569
WEST CENTRAL	23806	25243	25620	26428	28700	28560	28836	29214	30031	30578	31280
NORTHERN	21651	22383	23071	23350	24060	24257	24255	24299	25291	25684	26185
WSCC	80115	88727	91756	94565	95501	98722	100275	100695	102072	104099	106163
NW POOL	28737	36102	37253	39954	41430	42472	42609	42584	42455	43041	42843
ROCKY MT-AREA	17053	16431	17050	17616	17745	18250	18697	19335	19883	20567	21282
ARIZ-N.MEX	19667	21471	22390	22597	21894	23117	23779	24307	24695	25392	26233
CALIF-SO.NEV	14658	14723	15063	14398	14432	14883	15190	14469	15039	15099	15805
TOTAL(U.S.)	201001	222730	228094	229851	238008	241612	247683	250382	256167	264435	272475
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	1822	2101	2062	2088	1918	1661	1661	1700	1700	1700	1700
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO[c]	1822	2101	2062	2088	1918	1661	1661	1700	1700	1700	1700
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	19144	19866	20408	21218	22623	23871	24976	25456	26492	27849	28994
TOTAL(CANADA)	20966	21967	22470	23306	24541	25532	26637	27156	28192	29549	30694
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	221967	244697	250564	253157	262549	267144	274320	277538	284359	293984	303169

a) Coal mined west of the Mississippi River.
b) Coal sources indeterminate for ECAR. See Table 24 for ECAR total coal figures.
c) Coal from western Canada.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
OTHER COAL (STEAM) - 1000's TONS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR [a]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	40036	39524	39588	39926	38842	38501	38989	39408	39239	39640	40881
MAIN	35032	30971	30408	32013	29796	30547	31464	31629	32057	32683	31610
CMNWLTH EDISON	2696	2470	2180	1990	2110	2090	2110	2310	2330	2280	2470
EAST MISSOURI	9932	10202	9607	10665	8405	8495	8707	9069	8898	9227	8962
S CENT ILLINOIS	16110	14445	14683	15051	14363	14956	15420	15147	15577	15801	14778
WIS-UPPER MICH	6294	3854	3938	4307	4918	5006	5227	5103	5252	5375	5400
MAPP	2511	3261	3052	2820	3027	3068	3085	2841	2846	2556	2645
NPCC	13621	15128	15013	14820	15267	15648	16122	16316	16714	17228	17814
NEW YORK	8316	9095	9471	9255	9940	10309	10761	10956	10923	11349	11685
NEW ENGLAND	5305	6033	5542	5565	5327	5339	5361	5360	5791	5879	6129
SERC	134691	126793	127894	127389	134036	135312	137472	137413	137855	137471	143520
FLORIDA	15152	15004	17918	20455	21538	21728	21882	22430	22442	22356	22706
SOUTHERN	47551	44474	44084	43648	45941	47215	47961	46657	46250	46742	47011
TVA	34735	33391	30210	29239	29513	29324	28769	26637	27003	25798	28411
VACAR	37253	33924	35682	34047	37044	37045	38860	41689	42160	42575	45392
SPP	3116	3999	3934	3583	3867	4142	4194	4246	3430	3446	3463
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	3116	3999	3934	3583	3867	4142	4194	4246	3430	3446	3463
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	229007	219676	219889	220551	224835	227218	231326	231853	232141	233024	239933
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	9658	8329	7701	7351	6540	6516	6402	7022	8860	9461	12720
NEW BRUNSWICK [b]	517	580	710	1105	1177	1141	1200	1538	2400	2422	2429
NOVA SCOTIA [b]	2136	2174	2293	2346	2389	2584	2987	3082	3290	3407	3568
ONTARIO [c]	7005	5575	4698	3900	2974	2791	2215	2402	3170	3632	6723
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	9658	8329	7701	7351	6540	6516	6402	7022	8860	9461	12720
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	238665	228005	227590	227902	231375	233734	237728	238875	241001	242485	252653

a) Coal sources indeterminate for ECAR. See Table 24 for ECAR total coal figures.
b) Coal from Canada.
c) Bituminous coal from the United States.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
TOTAL DISTILLATE OIL[a,b] - 1000's BARRELS

	ACTUAL 1986	PROJECTED 1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	1825	1676	1676	1676	1676	1668	1668	1668	1668	1683	1734
ERCOT	287	584	967	1114	1387	1456	1690	1822	1953	2128	2278
MAAC	3497	823	765	781	666	679	654	704	747	854	1053
MAIN	722	456	511	479	429	456	467	388	521	614	725
CMNWLTH EDISON	287	5	5	15	10	30	35	45	55	100	135
EAST MISSOURI	138	201	276	253	220	237	246	177	290	334	411
S CENT ILLINOIS	118	114	98	124	117	105	103	88	98	101	99
WIS-UPPER MICH	179	136	132	87	82	84	83	78	78	79	80
MAPP	412	284	307	425	392	440	464	583	480	539	551
NPCC	2380	6441	3868	6525	4141	3622	1349	1526	1753	2080	1790
NEW YORK	1111	5090	3501	6133	3934	3453	1176	1225	1497	1535	1359
NEW ENGLAND	1269	1351	367	392	207	169	173	301	256	545	431
SERC	2197	3327	2449	2163	2340	2852	3029	3358	3208	3493	3886
FLORIDA	798	184	171	179	200	268	340	674	517	611	699
SOUTHERN	417	391	394	437	455	487	505	530	573	524	544
TVA	357	1710	789	608	597	632	649	596	577	631	759
VACAR	625	1042	1095	939	1088	1465	1535	1558	1541	1727	1884
SPP	529	609	450	494	528	554	650	1066	1369	1459	1920
SOUTHEAST	212	229	99	100	97	126	213	636	949	1024	1478
WEST CENTRAL	104	96	96	100	128	127	128	130	130	134	135
NORTHERN	213	284	255	294	303	301	309	300	290	301	307
WSCC	443	838	666	607	599	845	1114	1220	1339	1458	1585
NW POOL	1	0	0	0	0	249	461	461	461	461	461
ROCKY MT-AREA	29	25	25	49	55	73	95	119	163	189	218
ARIZ-N.MEX	77	311	162	100	91	92	127	206	277	363	458
CALIF-SO.NEV	336	502	479	458	453	431	431	434	438	445	448
TOTAL(U.S.)	12292	15038	11659	14264	12158	12572	11085	12335	13038	14308	15522
NERC-CANADA											
MAPP	36	29	22	22	21	19	17	17	17	17	18
NPCC	312	313	313	303	319	299	313	284	306	375	561
NEW BRUNSWICK	29	2	1	2	2	1	1	1	3	14	19
NOVA SCOTIA	60	74	79	80	84	87	91	92	99	106	112
ONTARIO	223	237	233	221	233	211	221	191	204	255	430
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	348	342	335	325	340	318	330	301	323	392	579
NERC-MEXICO											
WSCC	44	60	0	157	0	0	0	0	0	0	0
TOTAL(MEXICO)	44	60	0	157	0	0	0	0	0	0	0
NERC-TOTAL	12684	15440	11994	14746	12498	12890	11415	12636	13361	14700	16101

a) Includes No.1 and No.2 oil, kerosene, and jet fuel.
b) Used in steam, combustion turbine (and diesel), and combined cycle units and in coal-burning plants for startup and flame stabilization.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
DISTILLATE OIL^{a}(STEAM) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	1670	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
ERCOT	286	584	602	602	602	602	603	604	623	631	654
MAAC	1769	276	276	259	247	332	340	385	417	447	494
MAIN	627	374	394	374	346	363	354	331	404	457	518
CMNWLTH EDISON	230	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	128	170	190	202	171	193	183	167	230	281	344
S CENT ILLINOIS	118	86	88	86	94	87	89	87	97	98	95
WIS-UPPER MICH	151	118	116	86	81	83	82	77	77	78	79
MAPP	181	177	233	196	194	175	204	208	210	218	218
NPCC	287	265	179	198	146	142	142	158	160	189	186
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	287	265	179	198	146	142	142	158	160	189	186
SERC	1408	1437	1386	1372	1479	1763	1913	1844	1802	1963	2024
FLORIDA	243	49	55	70	67	71	78	92	81	91	89
SOUTHERN	370	386	387	433	450	483	500	501	501	501	500
TVA	283	380	326	315	311	310	312	301	291	296	302
VACAR	512	622	618	554	651	899	1023	950	929	1075	1133
SPP	477	531	374	381	425	431	441	453	442	445	450
SOUTHEAST	193	210	80	79	76	80	86	98	80	77	76
WEST CENTRAL	104	96	95	99	125	126	127	129	129	132	133
NORTHERN	180	225	199	203	224	225	228	226	233	236	241
WSCC	122	335	186	128	121	122	157	236	307	383	488
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	22	24	24	30	30	30	30	30	30	30	30
ARIZ-N.MEX	77	311	162	98	91	92	127	206	277	353	458
CALIF-SO.NEV	23	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	6827	5529	5180	5060	5110	5480	5704	5769	5915	6283	6582
NERC-CANADA											
MAPP	13	19	11	11	11	11	11	11	11	11	11
NPCC	306	266	268	257	273	254	268	252	259	266	272
NEW BRUNSWICK	23	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	60	74	79	80	84	87	91	92	99	106	112
ONTARIO	223	192	189	177	189	167	177	160	160	160	160
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	319	285	279	268	284	265	279	263	270	277	283
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	7146	5814	5459	5328	5394	5745	5983	6032	6185	6560	6865

a) Includes No.1 and No.2 oil, kerosene, and jet fuel.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
DISTILLATE OIL[a] (COMBUSTION TURBINE)[b] - 1000's BARRELS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	145	118	118	118	118	110	110	110	110	125	125
ERCOT	0	0	365	512	785	854	1087	1218	1330	1497	1624
MAAC	1572	392	346	376	268	224	204	196	204	266	408
MAIN	95	82	117	105	83	93	113	57	117	157	207
CMNWLTH EDISON	57	5	5	15	10	30	35	45	55	100	135
EAST MISSOURI	10	31	86	51	49	44	63	10	60	53	67
S CENT ILLINOIS	0	28	10	38	23	18	14	1	1	3	4
WIS-UPPER MICH	28	18	16	1	1	1	1	1	1	1	1
MAPP	230	105	72	227	196	235	258	372	267	318	330
NPCC	1498	5321	3516	6165	3946	3460	1183	1290	1533	1627	1442
NEW YORK	1111	5090	3501	6133	3934	3453	1176	1225	1497	1535	1359
NEW ENGLAND	387	231	15	32	12	7	7	65	36	92	83
SERC	786	1890	1063	791	861	1089	1116	1514	1406	1530	1862
FLORIDA	552	135	116	109	133	197	262	582	436	520	610
SOUTHERN	47	5	7	4	5	4	5	29	72	23	44
TVA	74	1330	463	293	286	322	337	295	286	335	457
VACAR	113	420	477	385	437	566	512	608	612	652	751
SPP	52	78	76	113	103	123	209	613	927	1008	1470
SOUTHEAST	19	19	19	21	21	46	127	538	869	947	1402
WEST CENTRAL	0	0	1	1	3	1	1	1	1	2	2
NORTHERN	33	59	56	91	79	76	81	74	57	59	66
WSCC	277	503	480	479	478	723	957	984	1032	1075	1097
NW POOL	1	0	0	0	0	249	461	461	461	461	461
ROCKY MT-AREA	7	1	1	19	25	43	65	89	133	159	188
ARIZ-N.MEX	0	0	0	2	0	0	0	0	0	10	0
CALIF-SO.NEV	269	502	479	458	453	431	431	434	438	445	448
TOTAL (U.S.)	4655	8489	6153	8886	6838	6911	5237	6354	6926	7603	8565
NERC-CANADA											
MAPP	23	10	11	11	10	8	6	6	6	6	7
NPCC	6	47	45	46	46	45	45	32	47	109	289
NEW BRUNSWICK	6	2	1	2	2	1	1	1	3	14	19
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	45	44	44	44	44	44	31	44	95	270
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL (CANADA)	29	57	56	57	56	53	51	38	53	115	296
NERC-MEXICO											
WSCC	44	60	0	157	0	0	0	0	0	0	0
TOTAL (MEXICO)	44	60	0	157	0	0	0	0	0	0	0
NERC-TOTAL	4728	8606	6209	9100	6894	6964	5288	6392	6979	7718	8861

a) Includes No.1 and No.2 oil, kerosene, and jet fuel.
b) Includes diesel units.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
DISTILLATE OIL[a] (COMBINED CYCLE) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	10	8	8	8	8	8	8	8	8	8	59
ERCOT	1	0	0	0	0	0	0	0	0	0	0
MAAC	156	155	143	146	151	123	110	123	126	141	151
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	1	2	2	2	2	30	2	3	3	3	3
NPCC	595	855	173	162	49	20	24	78	60	264	162
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	595	855	173	162	49	20	24	78	60	264	162
SERC	3	0	0	0	0	0	0	0	0	0	0
FLORIDA	3	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	6	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	6	0
WSCC	44	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	44	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	810	1020	326	318	210	181	144	212	197	422	375
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	810	1020	326	318	210	181	144	212	197	422	375

---

a) Includes No.1 and No.2 oil, kerosene, and jet fuel.

APPENDIX C

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
TOTAL RESIDUAL OIL[a,b] - 1000's BARRELS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC U.S.											
ECAR	1080	1120	1120	1120	1120	1120	1120	1120	1120	1120	1120
ERCOT	286	435	431	435	436	440	439	440	440	437	437
MAAC	29387	16321	17006	15819	12993	12040	11295	12452	13195	16432	18263
MAIN	4395	1419	732	562	823	760	1381	1631	1946	2773	3003
CMNWLTH EDISON	4010	960	405	455	690	610	1220	1380	1510	2360	2695
EAST MISSOURI	230	262	176	0	0	0	0	0	0	0	0
S CENT ILLINOIS	154	196	150	106	132	149	160	250	435	412	307
WIS-UPPER MICH	1	1	1	1	1	1	1	1	1	1	1
MAPP	10	35	38	90	85	87	91	110	85	108	99
NPCC	113717	94074	70374	77706	70152	74110	75894	84232	87401	94871	99550
NEW YORK	52346	41199	34874	38353	41032	45867	47694	52657	55639	57135	62482
NEW ENGLAND	61371	52875	35500	39353	29120	28243	28200	31575	31762	37736	37068
SERC	48519	49581	36769	33715	34925	36370	37491	41148	41233	47923	52759
FLORIDA	43422	47655	34093	32542	33800	35122	36380	40292	40138	47005	51837
SOUTHERN	460	355	311	280	222	287	15	48	46	51	58
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4637	1571	2365	893	903	961	1096	808	1049	867	864
SPP	1622	1208	1577	1442	1693	2525	2279	7620	8762	9611	8214
SOUTHEAST	1600	1184	1555	1417	1658	2478	2232	7568	8712	9562	8148
WEST CENTRAL	7	10	10	12	22	23	24	24	25	25	26
NORTHERN	15	14	12	13	13	24	23	28	25	24	40
WSCC	5220	3374	2708	1479	2009	1693	1794	1928	1875	1865	1823
NW POOL	273	0	0	0	0	38	38	38	38	38	38
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	17	0	11	0	0	0	4	7	7	0
CALIF-SO.NEV	4947	3357	2708	1468	2009	1655	1756	1886	1830	1820	1785
TOTAL(U.S.)	204236	167567	130755	132368	124236	129145	131784	150681	156057	175140	185268
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4501	3235	3333	3217	3524	3651	3360	3538	4871	6518	7950
NEW BRUNSWICK	3493	1978	2170	1520	1497	1677	2011	2157	3850	5634	7642
NOVA SCOTIA	989	1230	1160	1694	2024	1971	1346	1379	1019	882	306
ONTARIO	19	27	3	3	3	3	3	2	2	2	2
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	4501	3235	3333	3217	3524	3651	3360	3538	4871	6518	7950
NERC-MEXICO											
WSCC	2141	2575	2467	2888	3471	3985	4540	4444	4218	4683	5378
TOTAL(MEXICO)	2141	2575	2467	2888	3471	3985	4540	4444	4218	4683	5378
NERC-TOTAL	210878	173377	136555	138473	131231	136781	139684	158663	165146	186341	198596

a) Includes No.4, No.5, and No.6 oil.
b) Used in steam, combustion turbine (and diesel), and combined cycle units.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
RESIDUAL OIL[a](STEAM) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	1080	1120	1120	1120	1120	1120	1120	1120	1120	1120	1120
ERCOT	282	435	431	435	436	440	439	440	440	437	437
MAAC	29387	16321	17006	15819	12993	12040	11295	12452	13195	16432	18263
MAIN	4394	1418	731	561	822	759	1380	1630	1945	2772	3002
CMNWLTH EDISON	4010	960	405	455	690	610	1220	1380	1510	2360	2695
EAST MISSOURI	230	262	176	0	0	0	0	0	0	0	0
S CENT ILLINOIS	154	196	150	106	132	149	160	250	435	412	307
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	10	35	38	90	85	87	91	110	85	108	99
NPCC	113523	93877	70338	77665	70143	74101	75887	84206	87381	94800	99489
NEW YORK	52346	41199	34874	38353	41032	45867	47694	52657	55639	57135	62482
NEW ENGLAND	61177	52678	35464	39312	29111	28234	28193	31549	31742	37665	37007
SERC	48197	48748	36313	33289	34449	35868	36968	40516	40572	46123	50305
FLORIDA	43109	46822	33637	32116	33324	34620	35857	39660	39477	45205	49383
SOUTHERN	451	355	311	280	222	287	15	48	46	51	58
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4637	1571	2365	893	903	961	1096	808	1049	867	864
SPP	1622	1208	1577	1442	1693	2525	2279	7620	8762	9611	8214
SOUTHEAST	1600	1184	1555	1417	1658	2478	2232	7568	8712	9562	8148
WEST CENTRAL	7	10	10	12	22	23	24	24	25	25	26
NORTHERN	15	14	12	13	13	24	23	28	25	24	40
WSCC	5220	3359	2690	1464	1994	1678	1779	1913	1842	1829	1787
NW POOL	273	0	0	0	0	38	38	38	38	38	38
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	17	0	11	0	0	0	4	7	7	0
CALIF-SO.NEV	4947	3342	2690	1453	1994	1640	1741	1871	1797	1784	1749
TOTAL(U.S.)	203715	166521	130244	131885	123735	128618	131238	150007	155342	173232	182716
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4501	3235	3333	3217	3524	3651	3360	3538	4871	6518	7950
NEW BRUNSWICK	3493	1978	2170	1520	1497	1677	2011	2157	3850	5634	7642
NOVA SCOTIA	989	1230	1160	1694	2024	1971	1346	1379	1019	882	306
ONTARIO	19	27	3	3	3	3	3	2	2	2	2
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	4501	3235	3333	3217	3524	3651	3360	3538	4871	6518	7950
NERC-MEXICO											
WSCC	2141	2575	2467	2888	3471	3985	4540	4444	4218	4683	5378
TOTAL(MEXICO)	2141	2575	2467	2888	3471	3985	4540	4444	4218	4683	5378
NERC-TOTAL	210357	172331	136044	137990	130730	136254	139138	157989	164431	184433	196044

---

a) Includes No.4, No.5, and No.6 oil.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
RESIDUAL OIL[a] (COMBUSTION TURBINE)[b] - 1000's BARRELS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	4	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	1	1	1	1	1	1	1	1	1	1	1
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	1	1	1	1	1	1	1	1	1	1	1
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	322	469	435	408	393	408	436	569	604	677	912
FLORIDA	313	469	435	408	393	408	436	569	604	677	912
SOUTHERN	9	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	327	470	436	409	394	409	437	570	605	678	913
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	327	470	436	409	394	409	437	570	605	678	913

a) Includes No.4, No.5, and No.6 oil.
b) Includes diesel units.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
RESIDUAL OIL[a] (COMBINED CYCLE) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	194	197	36	41	9	9	7	26	20	71	61
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	194	197	36	41	9	9	7	26	20	71	61
SERC	0	364	21	18	83	94	87	63	57	1123	1542
FLORIDA	0	364	21	18	83	94	87	63	57	1123	1542
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	15	18	15	15	15	15	15	33	36	36
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	15	18	15	15	15	15	15	33	36	36
TOTAL(U.S.)	194	576	75	74	107	118	109	104	110	1230	1639
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	194	576	75	74	107	118	109	104	110	1230	1639

a) Includes No.4, No.5, and No.6 oil.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
TOTAL CRUDE OIL (STEAM) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	0	0	0	0	0	0	0	0	0	0	0
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	0	0	0	0	0	0	0	0	0	0	0

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
TOTAL FIRM NATURAL GAS[a] - 1000 MCF

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	703876	759655	689833	636359	628816	637193	638460	665537	660469	707314	714406
MAAC	1398	0	0	0	0	0	0	0	0	0	0
MAIN	5103	661	1247	778	266	452	527	712	824	1479	1885
CMNWLTH EDISON	5032	600	1155	695	180	385	510	695	795	1455	1855
EAST MISSOURI	0	260	260	260	260	260	260	260	260	260	260
S CENT ILLINOIS	70	61	92	83	86	67	17	17	29	24	30
WIS-UPPER MICH	1	0	0	0	0	0	0	0	0	0	0
MAPP	393	137	39	70	84	101	0	0	0	0	0
NPCC	408	0	0	0	0	0	0	0	0	0	0
NEW YORK	408	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	10570	4478	4929	5201	6500	8014	6384	8229	10847	9445	12010
FLORIDA[b]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	9440	4055	4058	4264	4263	4186	4249	4311	4538	4368	4277
TVA[c]	0	0	0	0	0	0	0	0	0	0	0
VACAR	1130	423	871	937	2237	3828	2135	3918	6309	5077	7733
SPP	432420	394597	369921	373437	336815	331036	376123	396158	400426	424273	435530
SOUTHEAST	180063	171017	143238	152323	132594	127611	162429	176984	175149	193053	195017
WEST CENTRAL	245327	217890	219610	214481	198184	197317	207014	212214	219236	224887	234306
NORTHERN	7030	5690	7073	6633	6037	6108	6680	6960	6041	6333	6207
WSCC	475934	625426	462799	357023	373235	354980	385100	430946	485953	473022	548497
NW POOL	1412	9991	11590	13997	13619	14094	13943	14094	14094	13619	14234
ROCKY MT-AREA	2299	6007	6174	6037	6120	6304	6691	6944	7631	5320	4069
ARIZ-N.MEX	50132	33520	36827	33865	34857	29418	33223	36896	42009	45822	44945
CALIF-SO.NEV	422091	575908	408208	303124	318639	305164	331243	373012	422219	408261	485249
TOTAL(U.S.)	1630102	1784954	1528768	1372868	1345716	1331776	1406594	1501582	1558519	1615533	1712328
NERC-CANADA											
MAPP	659	2021	7737	8410	11464	9193	4898	6282	6602	6425	4331
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	11589	24645	35386	38329	34866	28194	29736	35817	42109	39633	41902
TOTAL(CANADA)	12248	26666	43123	46739	46330	37387	34634	42099	48711	46058	46233
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1642350	1811620	1571891	1419607	1392046	1369163	1441228	1543681	1607230	1661591	1758561

a) Used in steam, combustion turbine (and diesel), and combined cycle units.
b) Does not distinguish between firm and interruptible natural gas. See Table 28 for SERC (Florida) total natural gas figures.
c) Gas is used in 30% of TVA's gas turbines when available and economic. TVA does not predict natural gas use in the long range planning process.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
FIRM NATURAL GAS (STEAM) - 1000 MCF

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	680081	732631	660986	611502	602564	607401	604090	616845	610225	655181	663793
MAAC	1275	0	0	0	0	0	0	0	0	0	0
MAIN	4808	542	1083	511	15	12	10	8	7	10	10
CMNWLTH EDISON	4751	535	1070	500	0	0	0	0	0	0	0
EAST MISSOURI	0	250	250	250	250	250	250	250	250	250	250
S CENT ILLINOIS	56	7	13	11	15	12	10	8	7	10	10
WIS-UPPER MICH	1	0	0	0	0	0	0	0	0	0	0
MAPP	386	0	0	0	0	0	0	0	0	0	0
NPCC	363	0	0	0	0	0	0	0	0	0	0
NEW YORK	363	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	6728	754	787	801	691	691	691	691	691	691	691
FLORIDA[a]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	5795	711	704	691	691	691	691	691	691	691	691
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	933	43	83	110	0	0	0	0	0	0	0
SPP	411926	362569	337311	342649	305880	300069	343983	364051	365724	390211	400129
SOUTHEAST	180063	171017	143238	152323	132594	127611	162429	176984	175149	193053	195017
WEST CENTRAL	224913	185943	187066	183759	167295	166431	174970	180203	184630	190931	199001
NORTHERN	6950	5609	7007	6567	5991	6027	6584	6864	5945	6227	6111
WSCC	442348	601296	440427	335270	350197	333433	362569	406345	460882	446118	523556
NW POOL	1412	9991	11590	13997	13619	14094	13943	14094	14094	13619	14234
ROCKY MT-AREA	2262	5940	6119	5981	6086	6203	6321	6451	6186	4446	3834
ARIZ-N.MEX	30145	19328	24323	22089	22104	18193	21253	23069	28589	30448	30745
CALIF-SO.NEV	408529	566037	398395	293203	308388	294943	321052	362731	412013	397605	474743
TOTAL(U.S.)	1547915	1697792	1440594	1290733	1259347	1241606	1311343	1387940	1437529	1492211	1588179
NERC-CANADA											
MAPP	571	1345	5146	3867	4614	4011	1775	2236	2591	2769	1562
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	3328	17536	26726	28875	26093	20465	21746	26870	31973	29831	31070
TOTAL(CANADA)	3899	18881	31872	32742	30707	24476	23521	29106	34564	32600	32632
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1551814	1716673	1472466	1323475	1290054	1266082	1334864	1417046	1472093	1524811	1620811

---

a) See Appendix C,page 13, footnote b.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
FIRM NATURAL GAS (COMBUSTION TURBINE)a- 1000 MCF

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	2464	645	277	245	768	4711	8612	12234	11973	12081	12274
MAAC	123	0	0	0	0	0	0	0	0	0	0
MAIN	295	119	164	267	251	440	517	704	817	1469	1875
CMNWLTH EDISON	281	65	85	195	180	385	510	695	795	1455	1855
EAST MISSOURI	0	10	10	10	10	10	10	10	10	10	10
S CENT ILLINOIS	14	54	79	72	71	55	7	9	22	14	20
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	7	137	39	70	84	101	0	0	0	0	0
NPCC	45	0	0	0	0	0	0	0	0	0	0
NEW YORK	45	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	3842	3724	4142	4400	4488	5521	4248	4392	6120	4967	5191
FLORIDA[b]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	3645	3344	3354	3573	3572	3495	3558	3620	3847	3677	3586
TVA[c]	0	0	0	0	0	0	0	0	0	0	0
VACAR	197	380	788	827	916	2026	690	772	2273	1290	1605
SPP	829	455	157	50	101	255	1859	722	2037	1053	2301
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	808	434	136	29	80	234	1838	701	2016	1032	2280
NORTHERN	21	21	21	21	21	21	21	21	21	21	21
WSCC	3978	3242	2900	2805	3376	3090	3666	4258	5568	5148	4630
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	37	67	55	56	34	101	370	493	1445	874	235
ARIZ-N.MEX	2073	1274	1032	798	1061	738	1105	1454	1887	1588	1889
CALIF-SO.NEV	1868	1901	1813	1951	2281	2251	2191	2311	2236	2686	2506
TOTAL(U.S.)	11583	8322	7679	7837	9068	14118	18902	22310	26515	24718	26271
NERC-CANADA											
MAPP	88	676	2591	4543	6850	5182	3123	4046	4011	3656	2769
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	8261	7109	8660	9454	8773	7729	7990	8947	10136	9802	10832
TOTAL(CANADA)	8349	7785	11251	13997	15623	12911	11113	12993	14147	13458	13601
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	19932	16107	18930	21834	24691	27029	30015	35303	40662	38176	39872

---

a) Includes diesel units.
b) See Appendix C, page 13, footnote b.
c) See Appendix C, page 13, footnote c.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
FIRM NATURAL GAS (COMBINED CYCLE) - 1000 MCF

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	21331	26379	28570	24612	25484	25081	25758	36458	38271	40052	38339
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEW ENGLAND	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	1321	1802	1445	3146	4036	3787	6128
FLORIDA[a]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	1321	1802	1445	3146	4036	3787	6128
SPP	19665	31573	32453	30738	30834	30712	30281	31385	32665	33009	33100
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	19606	31513	32408	30693	30809	30652	30206	31310	32590	32924	33025
NORTHERN	59	60	45	45	25	60	75	75	75	85	75
WSCC	29608	20888	19472	18948	19662	18457	18865	20343	19503	21756	20311
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	17914	12918	11472	10978	11692	10487	10865	12373	11533	13786	12311
CALIF-SO.NEV	11694	7970	8000	7970	7970	7970	8000	7970	7970	7970	8000
TOTAL(U.S.)	70604	78840	80495	74298	77301	76052	76349	91332	94475	98604	97878
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	70604	78840	80495	74298	77301	76052	76349	91332	94475	98604	97878

a) See Appendix C, page 13, footnote b.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
TOTAL INTERRUPTIBLE NATURAL GAS[a,b] - 1000 MCF

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	8590	6400	6400	6400	6400	1500	1500	1500	1500	1500	7000
ERCOT	240894	192806	202026	192101	192713	178893	190759	191764	186844	194381	202392
MAAC	39427	89888	80918	76665	71502	71717	63359	71464	73438	74309	77918
MAIN	2690	1844	1589	2180	2444	2078	3040	4011	5228	5998	6469
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	349	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	433	310	84	109	296	219	200	633	1184	980	1296
WIS-UPPER MICH	1908	1274	1245	1811	1888	1599	2580	3118	3784	4758	4917
MAPP	2884	3784	3287	3274	3870	4347	4499	4634	3972	4014	4533
NPCC	147084	133330	125112	113143	105469	108242	93108	90016	95642	94391	96128
NEW YORK	131042	126700	120400	107600	92400	83500	72300	62300	58300	52700	52700
NEW ENGLAND	16042	6630	4712	5543	13069	24742	20808	27716	37342	41691	43428
SERC	9616	1290	6326	3561	3562	9026	15779	22071	30293	54445	46697
FLORIDA[c]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	9336	1101	1135	1087	930	1040	792	802	830	874	955
TVA[d]	0	0	0	0	0	0	0	0	0	0	0
VACAR	280	189	5191	2474	2632	7986	14987	21269	29463	53571	45742
SPP	238979	232766	244107	235889	258091	280133	290561	238404	246650	254037	241958
SOUTHEAST	231761	219032	234104	224953	225938	243447	246127	186590	190332	189915	172788
WEST CENTRAL	2375	4569	1668	1550	21014	23446	27882	30061	32399	35528	37241
NORTHERN	4843	9165	8335	9386	11139	13240	16552	21753	23919	28594	31929
WSCC	2110	66670	62367	65556	64500	79188	100625	102159	106684	101556	99580
NW POOL	56	1109	1286	1555	1513	10699	28357	28127	28127	28074	28390
ROCKY MT-AREA	2054	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	5988	5822	5839	5585	5655	5731	5783	5944	6043	6176
CALIF-SO.NEV	0	59573	55259	58162	57402	62834	66537	68249	72613	67439	65014
TOTAL(U.S.)	692274	728778	732132	698769	708551	735124	763230	726025	750251	784631	782675
NERC-CANADA											
MAPP	12	40	40	40	40	40	40	40	40	40	40
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	9	0	0	0	0	10792	23123	32585	32585	32585	32585
TOTAL(CANADA)	21	40	40	40	40	10832	23163	32625	32625	32625	32625
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	692295	728818	732172	698809	708591	745956	786393	758648	782876	817256	815300

a) Interruptible by contractual agreement.
b) Used in steam, combustion turbine (and diesel), and combined cycle units.
c) Does not distinguish between firm and interruptible natural gas. See Table 28 for SERC (Florida) total natural gas figures.
d) Gas is used in 30% of TVA's gas turbines when available and economic. TVA does not predict natural gas use in the long range planning process.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
INTERRUPTIBLE NATURAL GAS[a] (STEAM) - 1000 MCF

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	8000	6000	6000	6000	6000	1100	1100	1100	1100	1100	6600
ERCOT	231828	185396	193077	183006	181951	167625	178038	177771	171777	178480	185666
MAAC	26116	67320	60502	57830	54454	56930	50775	57514	58880	56562	58567
MAIN	2344	1415	1156	1454	1764	1498	1691	2139	2691	2730	2854
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	349	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	363	292	47	104	214	146	134	474	885	743	721
WIS-UPPER MICH	1632	873	859	1100	1300	1102	1307	1415	1556	1737	1883
MAPP	2403	2405	2099	2003	2568	2900	3192	3148	2444	2547	2761
NPCC	138374	123700	118900	107600	92400	83500	72300	62300	58300	52700	41700
NEW YORK	126957	123700	118900	107600	92400	83500	72300	62300	58300	52700	41700
NEW ENGLAND	11417	0	0	0	0	0	0	0	0	0	0
SERC	9440	1091	6101	3329	3072	3740	2280	2197	2893	3106	2519
FLORIDA[b]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	9260	1089	1119	1072	913	1021	772	776	801	841	916
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	180	2	4982	2257	2159	2719	1508	1421	2092	2265	1603
SPP	237955	231710	242916	234628	256216	278023	288083	234633	242553	249665	236274
SOUTHEAST	231297	218570	233559	224667	225412	242783	245311	185033	188643	188458	170996
WEST CENTRAL	2347	4569	1668	1550	20996	23440	27873	30048	32382	35488	37184
NORTHERN	4311	8571	7689	8411	9808	11800	14899	19552	21528	25719	28094
WSCC	2054	61839	56646	59916	56598	58412	59946	61826	64051	59699	56568
NW POOL	0	1109	1286	1555	1513	1566	1549	1566	1566	1513	1582
ROCKY MT-AREA	2054	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	5810	5644	5661	5408	5477	5554	5605	5767	5865	5999
CALIF-SO.NEV	0	54920	49716	52700	49677	51369	52843	54655	56718	52321	48987
TOTAL(U.S.)	658514	680876	687397	655766	655023	653728	657405	602628	604689	606589	593509
NERC-CANADA											
MAPP	12	40	40	40	40	40	40	40	40	40	40
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	10792	23123	32585	32585	32585	32585
TOTAL(CANADA)	12	40	40	40	40	10832	23163	32625	32625	32625	32625
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	658526	680916	687437	655806	655063	664560	680568	635253	637314	639214	626134

---

a) Interruptible by contractual agreement.
b) See Appendix C, page 17, footnote c.

APPENDIX C

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
INTERRUPTIBLE NATURAL GAS[a] (COMBUSTION TURBINE)[b] - 1000 MCF

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	590	400	400	400	400	400	400	400	400	400	400
ERCOT	317	0	2190	3072	4710	5124	6522	7317	7980	8982	9756
MAAC	9717	12932	13021	11277	9269	8443	6938	7638	8064	10493	11558
MAIN	346	429	433	726	680	580	1349	1872	2537	3268	3615
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	70	18	37	5	82	73	66	159	299	237	571
WIS-UPPER MICH	276	401	386	711	588	497	1273	1703	2228	3021	3034
MAPP	481	1379	1188	1176	1302	1447	1307	1486	1528	1467	1772
NPCC	4173	3000	1500	0	0	0	0	0	0	160	117
NEW YORK	4085	3000	1500	0	0	0	0	0	0	0	0
NEW ENGLAND	88	0	0	0	0	0	0	0	0	160	117
SERC	176	199	225	232	261	164	239	197	191	198	214
FLORIDA[c]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	76	12	16	15	17	19	20	26	29	33	39
TVA[d]	0	0	0	0	0	0	0	0	0	0	0
VACAR	100	187	209	217	244	145	219	171	162	165	175
SPP	363	497	568	667	908	1237	1471	1949	2187	2662	3424
SOUTHEAST	5	3	3	3	3	6	17	7	16	28	72
WEST CENTRAL	28	0	0	0	18	6	9	13	17	40	57
NORTHERN	330	494	565	664	887	1225	1445	1929	2154	2594	3295
WSCC	56	3981	4837	4790	2490	4560	6585	6599	6598	6176	6222
NW POOL	56	0	0	0	0	3521	5789	5681	5681	5681	5789
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	178	178	178	177	178	177	178	177	178	177
CALIF-SO.NEV	0	3803	4659	4612	2313	861	619	740	740	317	256
TOTAL(U.S.)	16219	22817	24362	22340	20020	21955	24811	27458	29485	33806	37078
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	9	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	9	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	16228	22817	24362	22340	20020	21955	24811	27458	29485	33806	37078

a) Interruptible by contractual agreement.
b) Includes diesel units.
c) See Appendix C, page 17, footnote c.
d) See Appendix C, page 17, footnote d.

APPENDIX C
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

REGIONAL FOSSIL FUEL REQUIREMENTS FOR ELECTRICAL ENERGY PRODUCTION
INTERRUPTIBLE NATURAL GAS[a] (COMBINED CYCLE) - 1000 MCF

	ACTUAL	PROJECTED									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	8749	7410	6759	6023	6052	6144	6199	6676	7087	6919	6970
MAAC	3594	9636	7395	7558	7779	6344	5646	6312	6494	7254	7793
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	95	0	0	0	0	0	0	0
NPCC	4537	6630	4712	5543	13069	24742	20808	27716	37342	41531	54311
NEW YORK	0	0	0	0	0	0	0	0	0	0	11000
NEW ENGLAND	4537	6630	4712	5543	13069	24742	20808	27716	37342	41531	43311
SERC	0	0	0	0	229	5122	13260	19677	27209	51141	43964
FLORIDA[b]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	229	5122	13260	19677	27209	51141	43964
SPP	661	559	623	594	967	873	1007	1822	1910	1710	2260
SOUTHEAST	459	459	542	283	523	658	799	1550	1673	1429	1720
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	202	100	81	311	444	215	208	272	237	281	540
WSCC	0	850	884	850	5412	16216	34094	33734	36035	35681	36790
NW POOL	0	0	0	0	0	5612	21019	20880	20880	20880	21019
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	850	884	850	5412	10604	13075	12854	15155	14801	15771
TOTAL(U.S.)	17541	25085	20373	20663	33508	59441	81014	95937	116077	144236	152088
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	17541	25085	20373	20663	33508	59441	81014	95937	116077	144236	152088

---

a) Interruptible by contractual agreement.
b) See Appendix C, page 17, footnote c.

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/01	MAAC		PA	GPUS	INDIANA UNIVERSITY - QF	20	IC	NG	P	ZZ	
87/01	MAPP		WI	NSP	JIM FALLS #4	.6	HY	WAT	V	U	
87/01	SERC	SOU	GA	GEPC	SCHERER #3	833	ST	BIT	V	U	J
87/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	66	ZZ	UNK	P	ZZ	
87/01	WSCC	CNV	CA	PG&E	QF COGEN GAS 87	207	CG	NG	P	CG	
87/01	WSCC	CNV	CA	PG&E	QF COGEN NON-GAS 87	242	CG	UNK	P	CG	
87/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 87	1	HY	WAT	P	ZZ	
87/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 87	1	HY	WAT	P	ZZ	
87/01	WSCC	CNV	MX	CFE	CERRO PRIETO II - #2	100	GE	GST	V	U	
87/01	WSCC	NWP	OR	PPL	JIM BOYD HYDRO	1	HY	WAT	P	ZZ	
87/01	WSCC	NWP	UT	UAMP	BOUNTIFUL CITY	7	IC	NG	V	U	
87/01	WSCC	NWP	UT	UAMP	ECHO #1	1.3	HY	WAT	V	U	
87/01	WSCC	NWP	UT	UAMP	ECHO #2	1.3	HY	WAT	V	U	
87/01	WSCC	NWP	UT	UAMP	ECHO #3	1.4	HY	WAT	V	U	
87/01	WSCC	NWP	UT	UAMP	ST. GEORGE #1	7	IC	FO2	V	U	
87/01	WSCC	NWP	UT	UAMP	ST. GEORGE #2	7	IC	FO2	V	U	
87/01	WSCC	NWP	WA	PSPL	BELLINGHAM WASTE	4	CG	REF	V	CG	
87/01	WSCC	NWP	WA	TCL	MAIN CANAL HEADWORKS	26	HY	WAT	V	ZZ	
87/01	WSCC	RMP	CO	PSC	75 ST. WASTE WATER	1	ZZ	ZZ	V	ZZ	
87/01	WSCC	RMP	CO	PSC	SUNSHINE HYDRO	1	HY	WAT	P	ZZ	
87/02	MAAC		NJ	PSCO	STARMARK ENERGY SYSTEM,INC	3	ZZ	NG	P	ZZ	
87/02	MAAC		PA	GPUS	XIOX - GREEN HOUSE - QF	15	GT	NG	P	ZZ	
87/03	WSCC	CNV	CA	CDWR	THERMALITO DIV. DAM	3	HY	WAT	V	U	
87/03	WSCC	RMP	CO	PSC	BETASSO HYDRO	3	HY	WAT	V	ZZ	
87/04	SERC	FL	FL	JACO	ST. JOHNS RIVER #1	550	ST	BIT	V	U	J
87/04	WSCC	RMP	CO	PSC	GEORGETOWN LAKE HYDRO	0	HY	WAT	V	ZZ	
87/05	ECAR		MI	DECO	FERMI #2	1093	NB	UR	V	U	J
87/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	1	UN	UNK	P	ZZ	
87/05	MAIN	CE	IL	CECO	BRAIDWOOD #1	1090	NP	UR	V	U	
87/05	MAIN	CE	IL	CECO	BYRON #2	1120	NP	UR	V	U	
87/05	MAPP		MN	NSP	RIVERSIDE #7	51	ST	COL	V	U	
87/05	NPCC	NY	NY	CEHG	INDEPENDENT POWER PRODUCERS	2.3	ZZ	UNK	P	ZZ	
87/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	2	ZZ	UNK	P	ZZ	
87/05	NPCC	NY	NY	NEYE	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
87/05	NPCC	NY	NY	NIMP	INDEPENDENT POWER PRODUCERS	250	ZZ	UNK	P	ZZ	
87/05	WSCC	CNV	CA	USMP	STAMPEDE	3	HY	WAT	V	U	
87/06	MAIN	WUM	UN	WEP	SMALL UNITS	20	UN	UNK	P	ZZ	
87/06	NPCC	NE	VT	NEES	WILDER #3	3.2	HY	WAT	P	U	
87/06	SERC	SOU	GA	GEPC	VOGTLE #1	1071	NP	UR	V	U	J
87/06	WSCC	CNV	CA	SCE	SALTON SEA #1	9	GE	GST	V	U	
87/06	WSCC	CNV	CA	SNCL	SANTA CLARA CT #2	25	GT	NG	U	U	
87/06	WSCC	CNV	CA	WAMP	WEBER GT	9	CG	NG	P	CG	
87/06	WSCC	NWP	ID	WWPC	MISC. SMALL HYDRO (2)	1	HY	WAT	P	ZZ	
87/06	WSCC	NWP	UT	UAMP	EAST CANYON #1	1	HY	WAT	U	U	
87/06	WSCC	NWP	UT	UAMP	EAST CANYON #2	1	HY	WAT	U	U	
87/06	WSCC	RMP	CO	PSC	AMERICAN ATLAS #1	75	CG	NG	V	CG	
87/06	WSCC	RMP	CO	PSC	BLUE RIVER	2	HY	WAT	P	ZZ	
87/07	ECAR		MI	CP	NON-UTILITY GENERATION	2	ZZ	UNK	V	ZZ	
87/07	ECAR		PA	APS	AES BEAVER VALLEY (PURPA)	121	ST	COL	V	ZZ	
87/07	NPCC	ONT	ON	ONHY	BRUCE B #8	837	CD	UR	V	U	
87/07	SERC	FL	FL	ORLA	STANTON #1	415	ST	BIT	V	U	J
87/07	SERC	VAC	VA	VIEP	NORTH ANNA HYDRO	1	HY	WAT	U	U	
87/07	WSCC	AZN	NM	LAC	EL VADO DAM	8	HY	WAT	V	U	
87/07	WSCC	CNV	CA	CCSF	MOCCASIN	2	HY	WAT	V	U	
87/07	WSCC	CNV	CA	GLEN	SCHOLL CANYON #2	12	IC	REF	U	U	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	3	IC	UNK	P	ZZ	

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	87	IC	UNK	P	ZZ	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	2	CG	UNK	P	CG	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	27	CG	UNK	P	CG	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	17	GE	GST	P	ZZ	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	61	SO	SUN	P	ZZ	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	40	WM	WND	P	ZZ	
87/07	WSCC	CNV	UT	LDWP	INTERMOUNTAIN #2	800	ST	BIT	V	U	J
87/07	WSCC	NWP	OR	PPL	JOHNSTON LUMBER CO.	6	CG	WD	P	CG	
87/08	WSCC	CNV	CA	WAMP	WARM SPRINGS DAM	1	HY	WAT	U	ZZ	
87/09	ECAR		OH	BMLW	BRYAN #4	15	GT	NG	P	U	
87/09	NPCC	NY	NY	LOIL	SHOREHAM	809	NB	UR	V	U	
87/09	NPCC	NY	NY	NIMP	NINE MILE POINT #2	1080	NP	UR	V	U	J
87/09	WSCC	AZN	AZ	APS	PALO VERDE #3	1270	NP	UR	V	U	J
87/09	WSCC	CNV	CA	LDWP	HYPERION ENERGY SYS	25	CG	UNK	P	CG	
87/09	WSCC	NWP	OR	PPL	FARMERS I. D. #3	0	HY	WAT	P	ZZ	
87/09	WSCC	RMP	CO	CUEA	NUCLA #4	64	ST	BIT	V	U	
87/09	WSCC	RMP	CO	PSC	NORTH FORK HYDRO	6	HY	WAT	P	ZZ	
87/10	ERCOT		TX	AUST	GAS TURBINE #1	50	GT	NG	U	U	
87/10	ERCOT		TX	AUST	GAS TURBINE #2	50	GT	NG	U	U	
87/10	ERCOT		TX	AUST	GAS TURBINE #3	50	GT	NG	U	U	
87/10	ERCOT		TX	AUST	GAS TURBINE #4	50	GT	NG	U	U	
87/10	MAPP		SA	SPC	FUTURE GT #1	54	GT	NG	P	U	
87/10	WSCC	NWP	CA	PPL	ROBERT TIFT HYDRO	1	HY	WAT	P	ZZ	
87/10	WSCC	NWP	OR	PPL	N. CANAL DAM IRRIG.	1	HY	WAT	P	ZZ	
87/11	MAPP		MN	MP	BLANCHARD #3	6	HY	WAT	U	U	
87/11	MAPP		MN	NSP	SHERBURNE CO #3	800	ST	SUB	V	U	J
87/11	NPCC	NE	NH	PSNH	SEABROOK #1	1150	NP	UR	V	U	
87/11	NPCC	NE	VT	VTGP	BELDEN	.6	HY	WAT	T	U	
87/11	NPCC	ONT	ON	ONHY	DARLINGTON COMPLEX	40[a]	GT	FO2	V	U	
87/11	WSCC	NWP	OR	PPL	COOS COUNTY WASTE	1	CG	REF	P	CG	
87/11	WSCC	RMP	CO	PSC	PLATORO PROJECT	0	HY	WAT	U	ZZ	
87/12	ECAR		PA	CAPCO	BEAVER VALLEY #2	820	NP	UR	V	U	J
87/12	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #1	1250	NP	UR	V	U	J
87/12	WSCC	CNV	CA	PG&E	QF WIND 87	8	WM	WND	P	ZZ	
87/12	WSCC	CNV	CA	PG&E	SMALL QF HYDRO 87	12	HY	WAT	P	ZZ	
87/12	WSCC	NWP	UT	UAMP	PAYSON #1	2.5	IC	NG	P	U	
87/12	WSCC	NWP	UT	UAMP	PAYSON #2	2.5	IC	NG	P	U	
87/12	WSCC	RMP	CO	PSC	HIGHLAND CANAL HYDRO	2	HY	WAT	V	ZZ	
87/2Q	MAIN	SCI	IL	IPSW	CLINTON #1	950	NB	UR	V	U	J
87/SU	ECAR		OH	CAPCO	PERRY #1	1179	NB	UR	V	U	J
87/UN[b]	SERC	VAC	NC	CAPO	HARRIS #1	900	NP	UR	V	U	
SUBTOTAL						20043					
88/01	ECAR		MI	CP	NON-UTILITY GENERATION	52	ZZ	UNK	V	ZZ	
88/01	ERCOT		TX	LCRA	F. P. P. #3	344	ST	SUB	V	U	
88/01	MAAC		UN	GPUS	QUALIFYING FACILITIES	120	UN	UNK	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	60	ZZ	UNK	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	QF COGEN EOR GAS 88	45	CG	NG	P	CG	
88/01	WSCC	CNV	CA	PG&E	QF COGEN NON-GAS 88	558	CG	UNK	P	CG	
88/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 88	2	HY	WAT	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 88	2	HY	WAT	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 88	2	HY	WAT	P	U	
88/01	WSCC	CNV	CA	SCE	BALSAM MEADOW HYDRO	200	HY	WAT	V	U	
88/01	WSCC	CNV	CA	TID	DON PEDRO UNIT #4	28	HY	WAT	L	U	J
88/01	WSCC	NWP	ID	IPC	COGEN #4	20	CG	UNK	P	CG	
88/01	WSCC	NWP	OR	PPL	LACOMB IRRIG. DIST.	0	HY	WAT	P	ZZ	

a) The Darlington Complex combustion turbines capability estimates exclude CTU's which will not be available for system use due to their importance as emergency standby generation.

b) Harris 1 received a full power license on January 12, 1987 from the Nuclear Regulatory Commission and the company expects to declare the unit in commercial operation in early 1987.

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
88/01	WSCC	NWP	OR	PPL	LAKEVIEW POWER CO.	13	CG	WD	P	CG	
88/01	WSCC	NWP	OR	PPL	MISC. SMALL HYDRO (3)	5	HY	WAT	P	ZZ	
88/01	WSCC	NWP	WA	PPL	CITY OF WALLA WALLA	1	HY	WAT	P	ZZ	
88/01	WSCC	RMP	CO	PSC	COGEN AT UNC	65	CG	NG	V	CG	
88/01	WSCC	RMP	CO	PSC	ORODELL HYDRO	0	HY	WAT	U	ZZ	
88/02	WSCC	CNV	CA	PG&E	MOKELUMNE	1	HY	WAT	L	U	
88/02	WSCC	CNV	CA	PG&E	SALT SPRINGS #3	6	HY	WAT	L	U	
88/02	WSCC	CNV	CA	SNCL	BLACK BUTTE DAM	6	HY	WAT	U	U	
88/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	195	GT	NG	U	U	
88/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	GT	NG	T	U	
88/03	MAIN	WUM	WI	KAUK	COMBINED LOCKS	6	HY	WAT	P	U	
88/03	WSCC	CNV	CA	SNCL	HIGH LINE CANAL	0	HY	WAT	T	U	
88/03	WSCC	NWP	ID	WWPC	MISC. SMALL HYDRO (4)	1	HY	WAT	U	ZZ	
88/04	NPCC	NE	ME	BAHE	WEST ENFIELD	6.8	HY	WAT	P	U	
88/04	WSCC	NWP	ID	SCL	LUCKY PEAK	100	HY	WAT	U	ZZ	
88/04	WSCC	NWP	WA	TCL	STEAM PLANT #2	43	CG	REF	T	U	
88/05	MAAC		MD	DFLC	EASTON UNIDENTIFIED CT	6.2	IC	FO2	P	U	
88/05	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	6.3	IC	FO2	P	U	
88/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	84	UN	UNK	P	ZZ	
88/05	MAAC		PA	ALEC	RAYSTOWN #1	1	HY	WAT	U	U	
88/05	MAAC		PA	ALEC	RAYSTOWN #2	1	HY	WAT	U	U	
88/05	MAAC		PA	ALEC	RAYSTOWN #3	1	HY	WAT	U	U	
88/05	MAAC		UN	GPUS	QUALIFYING FACILITIES	4	UN	UNK	P	ZZ	
88/05	NPCC	NE	VT	VTGP	HIGHGATE FALLS	3.1	HY	WAT	U	U	
88/05	NPCC	NY	NY	CEHG	INDEPENDENT POWER PRODUCERS	9.2	ZZ	UNK	P	ZZ	
88/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
88/05	NPCC	NY	NY	NIMP	INDEPENDENT POWER PRODUCERS	119	ZZ	UNK	P	ZZ	
88/05	SPP	WC	OK	OKGE	COGENERATOR - SMITH	100	CT	NG	P	U	
88/05	WSCC	CNV	CA	CCPA	COLDWATER CRK UNIT 1	61	GE	GST	L	U	J
88/05	WSCC	CNV	CA	SDGE	HEBER	45	GE	GST	V	U	J
88/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	UNK	P	ZZ	
88/06	WSCC	CNV	CA	PG&E	QF WIND 88	19	WM	WND	P	ZZ	
88/06	WSCC	CNV	CA	PG&E	SMALL QF HYDRO 88	30	HY	WAT	P	ZZ	
88/06	WSCC	NWP	UT	UAMP	MOON LAKE #4-6	5	HY	WAT	T	U	
88/06	WSCC	NWP	WA	WWPC	MISC. SMALL HYDRO (1)	1	HY	WAT	L	ZZ	
88/07	ECAR		WV	APS	HANNIBAL LK&D (PURPA)	20	HY	WAT	U	ZZ	
88/07	ECAR		WV	APS	PURPA #1	1	HY	WAT	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	106	IC	UNK	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	2	IC	UNK	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	345	CG	UNK	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	490	CG	ZZ	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	6	CG	ZZ	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	1	GE	GST	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	127	GE	GST	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	3	HY	WAT	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	51	SO	SUN	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	36	WM	WND	P	ZZ	
88/08	ECAR		PA	APS	ALLEGHENY LK&D #5 (PURPA)	4	HY	WAT	L	ZZ	
88/09	MAAC		UN	GPUS	QUALIFYING FACILITIES	125	UN	UNK	P	ZZ	
88/09	MAIN	CE	IL	CECO	BRAIDWOOD #2	1090	NP	UR	V	U	
88/09	SERC	SOU	GA	GEPC	VOGTLE #2	1071	NP	UR	V	U	J
88/09	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	25	CG	UNK	P	CG	
88/10	ECAR		PA	APS	ALLEGHENY LK&D #6 (PURPA)	5	HY	WAT	L	ZZ	
88/10	ECAR		PA	APS	PURPA #2	1	ST	NG	P	ZZ	
88/10	MAPP		SA	SPC	FUTURE GT #2	108	GT	NG	P	U	
88/10	SERC	FL	FL	JACO	ST. JOHNS RIVER #2	550	ST	BIT	V	U	J

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
88/10	SPP	SE	AR	AREC	HS 13 UNIT #1	6	HY	WAT	U	U	
88/10	WSCC	AZN	NM	FARM	NAVAJO DAM	30	HY	WAT	U	U	
88/10	WSCC	CNV	CA	CCPA	COLDWATER CRK UNIT 2	61	GE	GST	L	U	J
88/10	WSCC	CNV	CA	PG&E	OWID: ROCK CREEK II	30	HY	WAT	L	ZZ	
88/10	WSCC	RMP	CO	USUC	MCPHEE POWER PLANT	1	HY	WAT	P	ZZ	
88/11	NPCC	NE	VT	VTGP	HUNTINGTON FALLS	.6	HY	WAT	T	U	
88/11	NPCC	ONT	ON	ONHY	DARLINGTON #2	881	CD	UR	V	U	
88/11	SPP	SE	AR	AREC	HS 13 UNIT #2	6	HY	WAT	U	U	
88/11	WSCC	CNV	CA	SCE	SMALL HYDRO	0	HY	WAT	T	U	
88/12	ECAR		IN	AEP	ROCKPORT #2	1300	ST	COL	V	U	
88/12	ECAR		PA	APS	PURPA #3	6	HY	WAT	P	ZZ	
88/12	ECAR		WV	APS	PURPA #4	5	HY	WAT	P	ZZ	
88/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	95	UN	UNK	P	ZZ	
88/12	SERC	FL	FL	FOPC	KING #9	30	CA	NG	U	U	
88/12	SPP	SE	AR	AREC	HS 13 UNIT #3	5	HY	WAT	U	U	
88/12	WSCC	CNV	CA	CCSF	O'SHAUGHNESSY	3	HY	WAT	P	U	
SUBTOTAL						9424					
89/01	ECAR		MI	CP	NON-UTILITY GENERATION	56	ZZ	UNK	U	ZZ	
89/01	ECAR		WV	APS	PURPA #5	3	HY	WAT	P	ZZ	
89/01	NPCC	NE	CT	NOEU	BULLS BRIDGE #7	6.6	HY	WAT	P	U	
89/01	NPCC	NE	CT	NOEU	FALLS VILLAGE #4	6.3	HY	WAT	P	U	
89/01	NPCC	NY	NY	NIMP	H.E.A.R.	2	HY	WAT	P	U	
89/01	WSCC	CNV	CA	PG&E	CHAMBERS/JACKASS DIV.	0	HY	WAT	L	U	
89/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	69	ZZ	UNK	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF COGEN NON-GAS 89	148	CG	UNK	P	CG	
89/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 89	2	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 89	2	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 89	2	HY	WAT	P	U	
89/01	WSCC	CNV	CA	RDNG	CAMAGE	20	CG	WD	P	CG	
89/01	WSCC	NWP	ID	IPC	COGEN #5	11	CG	UNK	P	CG	
89/01	WSCC	NWP	OR	PPL	CENTRAL OR POWER PROJ.	1	HY	WAT	P	ZZ	
89/01	WSCC	NWP	OR	PPL	HUSKIE INDUSTRIES	4	CG	WH	P	CG	
89/01	WSCC	NWP	OR	PPL	TUMULO IRRIG. DIST.	1	HY	WAT	P	ZZ	
89/02	SERC	FL	FL	ORLA	INDIAN RIVER PK#1	53	GT	NG	P	U	
89/02	SERC	SOU	GA	GEPC	SCHERER #4	808	ST	BIT	U	U	
Under Review[a]	SERC	TVA	TN	TEVA	WATTS BAR #1	1170	NP	UR	V	U	
89/04	WSCC	RMP	CO	PSC	PAONIA COKE PLANT	25	CG	BIT	T	CG	
89/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	200	UN	UNK	P	ZZ	
89/05	NPCC	NY	NY	CEHG	INDEPENDENT POWER PRODUCERS	5.9	ZZ	UNK	P	ZZ	
89/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
89/05	NPCC	NY	NY	NIMP	INDEPENDENT POWER PRODUCERS	48	ZZ	UNK	P	ZZ	
89/05	SERC	SOU	AL	ALAP	MILLER #3	666	ST	BIT	U	U	
89/06	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #2	1250	NP	UR	V	U	J
89/06	MAAC		UN	GPUS	QUALIFYING FACILITIES	21	UN	UNK	P	ZZ	
89/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	REF	P	ZZ	
89/06	NPCC	QUE	QB	HYQB	MANIC 5 PA #1	245	HY	WAT	U	U	
89/06	WSCC	AZN	AZ	APS	SOLAR #1	2	SO	SUN	U	U	
89/06	WSCC	AZN	AZ	TEP	SPRINGERVILLE #2	360	ST	SUB	U	U	
89/06	WSCC	CNV	CA	PG&E	QF WIND 89	1	WM	WND	P	ZZ	
89/06	WSCC	NWP	WA	GCPD	P. E. C. HEADWORKS	7	HY	WAT	U	ZZ	
89/07	ERCOT		TX	TUEC	COMANCHE PEAK #1	1150	NP	UR	V	U	J
89/07	WSCC	AZN	NM	LAC	ABIQUIU #1	7	HY	WAT	P	U	
89/07	WSCC	AZN	NM	LAC	ABIQUIU #2	7	HY	WAT	P	U	
89/07	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	35	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	69	IC	ZZ	P	ZZ	

a) TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup date for this capacity under construction is February 1989.

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	291	CG	NG	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	5	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	64	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	100	GE	GST	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	1	HY	WAT	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	31	SO	SUN	P	ZZ	
89/08	NPCC	ONT	ON	ONHY	DARLINGTON #1	881	CD	UR	V	U	
89/08	NPCC	QUE	QB	HYQB	MANIC 5 PA #2	245	HY	WAT	U	U	
89/08	WSCC	RMP	WY	USLM	SHOSHONE #1	3	HY	WAT	U	U	
89/08	WSCC	RMP	WY	USLM	SHOSHONE #2	6	HY	WAT	U	U	
89/08	WSCC	RMP	WY	USLM	SHOSHONE #3	6	HY	WAT	U	U	
89/08	WSCC	RMP	WY	USLM	SHOSHONE #4	6	HY	WAT	U	U	
89/09	MAAC		NJ	AECO	QUALIFYING FACILITY	118	CT	NG	P	ZZ	
89/09	MAAC		NJ	AECO	QUALIFYING FACILITY	50	CT	NG	P	ZZ	
89/09	WSCC	CNV	MX	CFE	ROSARITO II - #1	145	ST	F06	U	U	
89/09	WSCC	RMP	CO	PSC	PUEBLO CHEMICAL	55	CG	NG	T	CG	
89/10	ERCOT		TX	AUST	REFUSE #1	20	ST	REF	U	U	
89/10	MAPP		SA	SPC	FUTURE GT #3	108	GT	NG	P	U	
89/10	NPCC	QUE	QB	HYQB	MANIC 5 PA #3	245	HY	WAT	U	U	
89/10	WSCC	NWP	AB	EDMP	GENESEE #2	386	ST	SUB	U	U	
89/11	NPCC	QUE	QB	HYQB	MANIC 5 PA #4	245	HY	WAT	U	U	
89/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	265	UN	UNK	P	ZZ	
89/12	NPCC	NY	NY	NIMP	H.E.A.R.	10	HY	WAT	P	U	
89/12	WSCC	CNV	CA	PG&E	GEYSERS #21	140	GE	GST	T	U	
89/12	WSCC	CNV	CA	PG&E	GRIZZLY	18	HY	WAT	P	U	
89/12	WSCC	CNV	CA	PG&E	SMALL QF HYDRO 89	1	HY	WAT	P	ZZ	
89/UN	SERC	SOU	AL	ALEC	CAES #1[a]	50	ZZ	NG	P	U	
89/UN	SERC	SOU	UN	SEAP	NOT AVAILABLE	70	GT	GAS	P	U	
SUBTOTAL						10059					
90/01	ECAR		PA	APS	PURPA #6	11	HY	WAT	P	ZZ	
90/01	ERCOT		TX	TUEC	COMANCHE PEAK #2	1150	NP	UR	V	U	J
90/01	MAAC		NJ	AECO	QUALIFYING FACILITY	42	CT	NG	P	ZZ	
90/01	MAAC		NJ	AECO	RESOURCE RECOVERY	12	ZZ	REF	P	ZZ	
90/01	NPCC	NE	UN	OCSP	OCEAN ST. PWR. #1 (3rd Party)	210	CC	NG	L	ZZ	
90/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
90/01	WSCC	CNV	CA	CDWR	SOUTH GEYSERS	55	GE	GST	U	U	
90/01	WSCC	CNV	CA	NCPA	HYDROELEC. PROJ. #1	200	HY	WAT	U	U	J
90/01	WSCC	CNV	CA	PG&E	FRENCH CREEK	0	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	38	ZZ	UNK	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF COGEN EOR GAS 90	30	CG	NG	P	CG	
90/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 90	1	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 90	1	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 90	2	HY	WAT	P	U	
90/01	WSCC	CNV	CA	RDNG	LAKE REDDING	8	HY	WAT	L	U	
90/01	WSCC	CNV	CA	SCE	COOLWATER IGCC	100	ST	ZZ	V	U	
90/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	150	ZZ	UNK	P	U	
90/01	WSCC	NWP	ID	IPC	COGEN #6	7	CG	UNK	P	CG	
90/01	WSCC	NWP	OR	PPL	LITTLE GREYBACK	0	HY	WAT	P	ZZ	
90/01	WSCC	RMP	CO	PSC	AMERICAN ATLAS #3	80	CG	BIT	T	CG	
90/01	WSCC	RMP	CO	PSC	HORSE MOUNTAIN POWER GEN.	50	CG	BIT	T	CG	
90/03	ECAR		MI	CP	NON-UTILITY GENERATION	800	ZZ	NG	U	ZZ	
90/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	GT	NG	T	U	
90/03	SERC	SOU	GA	SEPA	RICHARD B. RUSSELL #5	75	PS	WAT	P	U	J
90/04	NPCC	NE	VT	VTGP	C. RUTLAND	.3	HY	WAT	P	U	
90/04	WSCC	CNV	CA	LDWP	COSO #1	10	GE	ZZ	P	U	

a) Compressed air energy storage.

APPENDIX D
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
90/05	ERCOT		TX	AUST	GAS TURBINES	150	GT	NG	P	U	
90/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	270	UN	UNK	P	ZZ	
90/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	NIMP	INDEPENDENT POWER PRODUCERS	191	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	ORRU	INDEPENDENT POWER PRODUCERS	15	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	POAS	PASNY NEW HYDRO	12	HY	WAT	P	U	
90/05	SERC	VAC	SC	SOCG	HAGOOD #1	74	CT	NG	P	U	
90/05	SERC	VAC	SC	SOCG	HAGOOD #2	74	CT	NG	P	U	
90/05	WSCC	RMP	CO	PSC	STAGECOACH	1	HY	WAT	T	ZZ	
90/06	NPCC	NE	VT	VTGP	FAIRFAX FALLS	2.8	HY	WAT	P	U	
90/06	NPCC	NY	NY	NIMP	H.E.A.R.	12	HY	WAT	P	U	
90/06	SERC	VAC	GA	SEPA	RICHARD B. RUSSELL #6	75	PS	WAT	P	U	J
90/06	SERC	VAC	VA	VIEP	CHESTERFIELD #7	127	GT	NG	L	U	
90/06	WSCC	CNV	CA	PG&E	QF WIND 90	1	WM	WND	P	ZZ	
90/06	WSCC	CNV	NV	NEVP	COMBINED CYCLE #1	210	CW	RG	P	U	
90/07	ECAR		PA	APS	PURPA #7	46	ST	COL	P	ZZ	
90/07	ECAR		PA	APS	PURPA #8	80	ST	COL	P	ZZ	
90/07	ECAR		WV	APS	PURPA #9	50	ST	COL	P	ZZ	
90/07	NPCC	NE	VT	VTGP	W. RUTLAND	210	CC	NG	P	U	
90/07	WSCC	CNV	CA	SCE	BATTERY STORAGE	10	ZZ	UNK	P	U	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	20	IC	UNK	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	16	CG	NG	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	7	CG	UNK	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	48	GE	GST	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	32	SO	SUN	P	ZZ	
Under Review[a]	SERC	TVA	TN	TEVA	WATTS BAR #2	1170	NP	UR	V	U	
90/09	NPCC	NE	ME	CEMP	LEWISTON	25	HY	WAT	L	U	
90/09	SERC	SOU	CA	SEPA	RICHARD B. RUSSELL #7	75	PS	WAT	P	U	J
90/09	WSCC	CNV	CA	PG&E	DOAKS RIDGE	1	HY	WAT	L	U	
90/09	WSCC	NWP	OR	USCE	BONNEVILLE FW SITE #3	2	HY	WAT	T	U	
90/09	WSCC	NWP	OR	USCE	BONNEVILLE FW SITE #4	3	HY	WAT	T	U	
90/09	WSCC	NWP	WA	USCE	BONNEVILLE FW SITE #6	3	HY	WAT	T	U	
90/09	WSCC	RMP	CO	USUC	RIDGEWAY POWER PLANT	4	HY	WAT	P	ZZ	
90/10	MAAC		PA	PECO	LIMERICK #2	1055	NB	UR	V	U	
90/10	WSCC	CNV	CA	PG&E	SHELL-MARTINEZ COGEN	49	CG	NG	P	U	
90/10	WSCC	NWP	AB	TAUC	SHEERNESS #2	366	ST	SUB	U	U	J
90/11	MAPP		MB	MHEB	LIMESTONE #1	120	HY	WAT	U	U	
90/12	ECAR		MI	CP	NON-UTILITY GENERATION	425	ZZ	NG	U	ZZ	
90/12	MAAC		NJ	AECO	QUALIFYING FACILITY	140	CT	NG	P	ZZ	
90/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	260	UN	UNK	P	ZZ	
90/12	MAPP		MB	MHEB	LIMESTONE #2	120	HY	WAT	U	U	
90/12	SERC	VAC	GA	SEPA	RICHARD B. RUSSELL #8	75	PS	WAT	P	U	J
90/12	WSCC	RMP	CO	USUC	TOWAOC	11	HY	WAT	P	ZZ	
90/UN	SERC	SOU	AL	ALEC	DEMOPOLIS HYDRO	50	HY	WAT	P	U	
SUBTOTAL						9160					
91/01	ECAR		MI	CP	NON-UTILITY GENERATION	78	ZZ	UNK	U	ZZ	
91/01	ECAR		PA	APS	PURPA #10	2	HY	WAT	P	ZZ	
91/01	ECAR		PA	APS	PURPA #11	80	ST	COL	P	ZZ	
91/01	ERCOT		TX	TUEC	TWIN OAK #1	750	ST	LIG	U	U	
91/01	NPCC	NE	MA	COMW	COMBINED CYCLE	89	CC	GAS	P	U	
91/01	NPCC	NE	MA	COMW	COMBINED CYCLE	89	CC	GAS	P	U	
91/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
91/01	SERC	FL	FL	HSTM	G. W. IVEY #22	20	IC	NG	P	U	
91/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	49	ZZ	UNK	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	SOFAR	118	HY	WAT	P	ZZ	

a) TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup date for this capacity under construction is August 1990.

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
91/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 91	1	HY	WAT	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 91	1	HY	WAT	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 91	2	HY	WAT	P	U	
91/01	WSCC	CNV	CA	PG&E	WEST POINT #2	4	HY	WAT	L	U	
91/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
91/01	WSCC	NWP	ID	IPC	COGEN #7	6	CG	UNK	P	CG	
91/02	MAPP		MB	MHEB	LIMESTONE #3	120	HY	WAT	U	U	
91/03	WSCC	CNV	CA	PG&E	HAAS-KINGS PROJECT	40	HY	WAT	P	U	
91/03	WSCC	RMP	CO	PSC	SOUTH CANYON GEO	10	GE	GST	T	ZZ	
91/04	ERCOT		TX	CPSA	MSW-LCP	36	ST	REF	P	U	
91/04	MAPP		MB	MHEB	LIMESTONE #4	120	HY	WAT	U	U	
91/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	35	UN	UNK	P	ZZ	
91/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	GT	NG	P	U	
91/05	MAAC		UN	PPCO	CT (OR COGEN)	85	GT	UNK	P	U	
91/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	10	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	POAS	PASNY NEW HYDRO	3	HY	WAT	P	U	
91/05	NPCC	ONT	ON	ONHY	DARLINGTON #3	881	CD	UR	U	U	
91/05	SERC	SOU	AL	ALAP	MILLER #4	666	ST	BIT	U	U	
91/05	SPP	WC	OK	OKGE	COGENERATOR - AES	300	ST	BIT	P	U	
91/05	WSCC	AZN	AZ	SRP	CORONADO #3	350	ST	SUB	U	U	
91/06	ECAR		OH	CG&E	W. H. ZIMMER #1	1300	ST	COL	U	U	J
91/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	REF	P	ZZ	
91/06	NPCC	NY	NY	NIMP	H.E.A.R.	1	HY	WAT	P	U	
91/06	SERC	VAC	VA	VIEP	CHESTERFIELD #7	58	ST	NG	L	U	
91/06	WSCC	CNV	CA	PG&E	QF WIND 91	4	WM	WND	P	ZZ	
91/06	WSCC	CNV	NV	NEVP	COMBINED CYCLE #2	210	CW	RG	P	U	
91/07	ECAR		KY	LG&E	TRIMBLE COUNTY #1	495	ST	COL	U	U	
91/07	ECAR		PA	APS	PURPA #12	80	ST	COL	P	ZZ	
91/07	ECAR		UN	APS	PURPA #13	80	ST	COL	P	ZZ	
91/07	ERCOT		TX	BEPC	UNDESIGNATED	150	GT	NG	P	U	
91/07	MAPP		MB	MHEB	LIMESTONE #5	120	HY	WAT	U	U	
91/07	NPCC	NE	MA	NOEU	CABOT #7	23.9	HY	WAT	P	U	
91/07	NPCC	NY	NY	NIMP	H.E.A.R.	49	HY	WAT	P	U	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	5	GE	GST	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	21	SO	SUN	P	ZZ	
91/10	MAPP		MB	MHEB	LIMESTONE #6	120	HY	WAT	U	U	
91/10	MAPP		SA	SPC	FUTURE FOSSIL #1	280	ST	LIG	P	U	
91/10	WSCC	CNV	CA	PG&E	PH AT CRESTA DAM	0	HY	WAT	L	U	
91/10	WSCC	CNV	CA	PG&E	PH AT ROCK CREEK DAM	1	HY	WAT	L	U	
91/10	WSCC	NWP	AB	EDMP	GENESEE #1	386	ST	SUB	U	U	
91/11	NPCC	NE	ME	BAHE	MILFORD	.7	HY	WAT	P	U	
91/12	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	15	IC	UNK	P	U	
91/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	125	UN	UNK	P	ZZ	
91/12	MAPP		MB	MHEB	LIMESTONE #7	120	HY	WAT	U	U	
91/12	WSCC	CNV	MX	CFE	ROSARITO II - #2	145	ST	FO6	T	U	
91/SU	MAIN	WUM	WI	MGE	COGENERATION	12	UN	UNK	P	CG	
91/UN	NPCC	NS	NS	NSPC	TRENTON #6	150	ST	BIT	P	U	
91/UN	SERC	SOU	AL	ALEC	CAES #2[a]	50	ZZ	NG	P	U	
91/UN	SERC	VAC	SC	DUPC	BAD CREEK #1	250	PS	WAT	U	U	
91/UN	SERC	VAC	SC	DUPC	BAD CREEK #2	250	PS	WAT	U	U	
SUBTOTAL						8757					
92/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
92/01	SERC	VAC	VA	VIEP	UNDESIGNATED	88	UN	UNK	P	U	
92/01	WSCC	CNV	CA	CDWR	DEVIL CANYON #3	80	HY	WAT	L	U	

a) Compressed air energy storage.

APPENDIX D
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
92/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	48	ZZ	UNK	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 92	1	SO	SUN	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 92	1	HY	WAT	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 92	1	HY	WAT	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 92	2	HY	WAT	P	U	
92/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
92/01	WSCC	NWP	ID	IPC	COGEN #8	6	CG	UNK	P	CG	
92/01	WSCC	NWP	ID	IPC	SWAN FALLS REBUILD	19	HY	WAT	T	U	
92/01	WSCC	NWP	WA	SCL	SOUTH FORK TOLT	15	HY	WAT	L	U	
92/02	NPCC	ONT	ON	ONHY	DARLINGTON #4	881	CD	UR	U	U	
92/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	300	GT	NG	P	U	
92/03	WSCC	CNV	CA	PG&E	CRESTA UNIT #3	18	HY	WAT	L	U	
92/03	WSCC	CNV	CA	PG&E	ROCK CREEK UNIT #3	36	HY	WAT	L	U	
92/04	ECAR		IN	IP&L	UNDESIGNATED	80	GT	FO2	P	U	
92/04	ERCOT		TX	CPSA	UNDESIGNATED #1	498	ST	COL	P	U	
92/04	SERC	SOU	AL	ALAP	THURLOW #4	40	HY	WAT	P	U	
92/04	SERC	SOU	AL	ALAP	YATES #3	30	HY	WAT	P	U	
92/05	MAAC		MD	BCCO	BRANDON SHORES #2	640	ST	BIT	V	U	
92/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	20	UN	UNK	P	ZZ	
92/05	MAAC		UN	PPCO	CT (OR COGEN)	85	GT	UNK	P	U	
92/05	MAPP		MB	MHEB	LIMESTONE #8	120	HY	WAT	U	U	
92/05	MAPP		MN	NSP	HENNEPIN ISLAND #6	6	HY	WAT	P	U	
92/05	NPCC	NY	NY	COEN	INDEPENDENT POWER PRODUCERS	70	ZZ	UNK	P	ZZ	
92/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
92/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	5	ZZ	UNK	P	ZZ	
92/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	UNK	P	ZZ	
92/06	SERC	VAC	VA	VIEP	UNDESIGNATED	258	UN	UNK	P	U	
92/06	SPP	N	MO	EMDE	UNKNOWN	75	ST	COL	P	U	
92/06	SPP	N	MO	SPRM	UNDETERMINED	50	GT	NG	P	U	
92/06	WSCC	CNV	CA	LDWP	GENERIC 1992	100	ZZ	UNK	P	U	
92/06	WSCC	NWP	OR	USCE	STRUBE UNIT #1	5	HY	WAT	T	U	
92/06	WSCC	NWP	UT	UPLC	BLUNDELL #2	15	GE	GST	P	U	
92/07	ERCOT		TX	BEPC	UNDESIGNATED	150	UN	NG	P	U	
92/07	NPCC	QUE	QB	HYQB	LG 2 PA #1	316	HY	WAT	T	U	
92/07	WSCC	CNV	CA	LDWP	SMALL HYDRO DEV	6	HY	WAT	P	U	
92/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	2	CG	UNK	P	CG	
92/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	21	SO	SUN	P	ZZ	
92/07	WSCC	NWP	OR	USCE	COUGAR UNIT #3	40	HY	WAT	T	U	
92/08	MAPP		MB	MHEB	LIMESTONE #9	120	HY	WAT	U	U	
92/09	ECAR		PA	APS	PURPA #14	80	ST	COL	P	ZZ	
92/09	NPCC	QUE	QB	HYQB	LG 2 PA #2	316	HY	WAT	T	U	
92/10	ECAR		KY	EKPC	J. K. SMITH #1	600	ST	COL	U	U	
92/11	MAPP		MB	MHEB	LIMESTONE #10	120	HY	WAT	U	U	
92/11	NPCC	NE	ME	BAHE	VEAZIE	4	HY	WAT	P	U	
92/11	NPCC	QUE	QB	HYQB	LG 2 PA #3	316	HY	WAT	T	U	
92/11	WSCC	CNV	CA	PG&E	GEYSERS #19	55	GE	GST	P	U	
92/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	450	UN	UNK	P	ZZ	
92/12	MAPP		IA	ISU	BURLINGTON CT #1	50	GT	FO2	P	U	
92/12	WSCC	CNV	CA	PG&E	QF WIND 92	4	WM	WND	P	ZZ	
92/UN	SERC	VAC	NC	CAPO	MAYO #2[a]	690	ST	COL	U	U	
92/UN	SERC	VAC	SC	DUPC	BAD CREEK #3	250	PS	WAT	U	U	
92/UN	SERC	VAC	SC	DUPC	BAD CREEK #4	250	PS	WAT	U	U	
SUBTOTAL						7543					
93/01	ERCOT		TX	TUEC	TWIN OAK #2	750	ST	LIG	U	U	
93/01	MAAC		NJ	AECO	RESOURCE RECOVERY	11	ZZ	REF	P	ZZ	

a) Due to regulatory rulings requiring scrubbers, CAPO is considering lower cost options to replace Mayo 2. Upon confirmation of the availability of lower cost capacity, CAPO will cancel Mayo 2.

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
93/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
93/01	SERC	VAC	VA	VIEP	UNDESIGNATED	135	UN	UNK	P	U	
93/01	WSCC	CNV	CA	PG&E	CRANE VALLEY PROJECT	0	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	49	ZZ	UNK	P	ZZ	
93/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 93	1	SO	SUN	P	ZZ	
93/01	WSCC	CNV	CA	PG&E	TULE PROJECT	0	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 93	25	HY	WAT	P	ZZ	
93/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 93	2	HY	WAT	P	U	
93/01	WSCC	CNV	CA	RDNG	LAKE RED BLUFF	4	HY	WAT	L	U	
93/01	WSCC	CNV	CA	RDNG	SPRING CREEK PS	115	PS	WAT	L	U	
93/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
93/01	WSCC	NWP	OR	IPC	SMALL HYDRO	6	HY	WAT	P	ZZ	
93/02	WSCC	CNV	MX	CFE	CERRO PRIETO IV - #1	50	GE	GST	L	U	
93/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	P	U	
93/04	ECAR		UN	CG&E	NEW GT #1	60	GT	FO2	P	U	
93/05	ERCOT		TX	AUST	COMBINED CYCLE	50	CT	NG	P	U	
93/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	20	UN	UNK	P	ZZ	
93/05	MAAC		UN	PPCO	CT (OR COGEN)	85	GT	UNK	P	U	
93/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
93/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	10	ZZ	UNK	P	ZZ	
93/05	SERC	VAC	SC	SOCG	UNDETERMINED #1	34	CW	WH	P	U	
93/05	SERC	VAC	SC	SOCG	UNDETERMINED #1	74	CT	NG	P	U	
93/05	SERC	VAC	SC	SOCG	UNDETERMINED #2	34	CW	WH	P	U	
93/05	SERC	VAC	SC	SOCG	UNDETERMINED #2	74	CT	NG	P	U	
93/06	SERC	VAC	VA	VIEP	UNDESIGNATED	190	UN	UNK	P	U	
93/06	SPP	N	MO	EMDE	ENERGY CENTER NO. 3	75	CA	NG	P	U	
93/06	WSCC	CNV	CA	LDWP	GENERIC 1993	100	ZZ	UNK	P	U	
93/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE #1	70	GT	FO2	P	U	
93/06	WSCC	NWP	OR	USCE	BLUE R LAKE PH UNIT #1	10	HY	WAT	P	U	
93/06	WSCC	NWP	OR	USCE	BLUE R LAKE PH UNIT #2	10	HY	WAT	P	U	
93/07	ERCOT		TX	BEPC	UNDESIGNATED	150	UN	NG	P	U	
93/07	NPCC	QUE	QB	HYQB	LG 2 PA #4	316	HY	WAT	T	U	
93/08	WSCC	NWP	OR	USCE	MCNARY 2ND PH #15	129	HY	WAT	P	U	
93/09	NPCC	QUE	QB	HYQB	LG 2 PA #5	316	HY	WAT	T	U	
93/10	NPCC	ONT	ON	ONHY	KIPLING EXTN. #1	66	HY	WAT	P	U	
93/10	WSCC	NWP	WA	USCE	WYNOOCHEE UNIT #1	2	HY	WAT	P	U	
93/10	WSCC	NWP	WA	USCE	WYNOOCHEE UNIT #2	4	HY	WAT	P	U	
93/10	WSCC	NWP	WA	USCE	WYNOOCHEE UNIT #3	4	HY	WAT	P	U	
93/11	NPCC	NB	NB	NBPO	PULVERIZED COAL #1	335	ST	BIT	P	U	
93/11	NPCC	ONT	ON	ONHY	LITTLE JACKFISH #1	64.5	HY	WAT	P	U	
93/11	NPCC	ONT	ON	ONHY	LITTLE JACKFISH #2	64.5	HY	WAT	P	U	
93/11	NPCC	QUE	QB	HYQB	LG 2 PA #6	316	HY	WAT	T	U	
93/11	WSCC	NWP	OR	USCE	MCNARY 2ND PH #16	129	HY	WAT	P	U	
93/12	WSCC	CNV	CA	PG&E	QF WIND 93	4	WM	WND	P	ZZ	
93/UN	SERC	SOU	AL	ALEC	CT #1	50	CT	FO2	P	U	
93/UN	SERC	SOU	UN	SEAP	NOT AVAILABLE	70	GT	GAS	P	U	
SUBTOTAL						4294					
94/01	NPCC	NE	UN	OCSP	OCEAN ST. PWR. #2 (3rd Party)	210	CC	NG	P	ZZ	
94/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
94/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #1	75	CT	FO6	P	U	
94/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #2	75	CT	FO6	P	U	
94/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #3	75	CT	FO6	P	U	
94/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #4	75	CT	FO6	P	U	
94/01	SERC	FL	FL	TAEC	UNKNOWN CT #1	75	GT	FO2[a]	P	U	
94/01	SERC	FL	FL	TAEC	UNKNOWN CT #2	75	GT	FO2[a]	P	U	

a) A decision whether these units will burn light oil or heavy oil has not been made.

APPENDIX D
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
Under Review[a]	SERC	TVA	AL	TEVA	BELLEFONTE #1	1212	NP	UR	V	U	
94/01	SERC	VAC	VA	VIEP	UNDESIGNATED	125	UN	UNK	P	U	
94/01	WSCC	AZN	AZ	SRP	ROOSEVELT #1	50	HY	WAT	T	U	
94/01	WSCC	CNV	CA	CDWR	MOJAVE SIPHON #1	7	HY	WAT	P	U	
94/01	WSCC	CNV	CA	CDWR	MOJAVE SIPHON #2	6	HY	WAT	P	U	
94/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	48	ZZ	UNK	P	ZZ	
94/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 94	1	SO	SUN	P	ZZ	
94/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 94	25	HY	WAT	P	ZZ	
94/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 94	2	HY	WAT	P	U	
94/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
94/02	ERCOT		TX	TUEC	FOREST GROVE #1	750	ST	LIG	U	U	
94/02	WSCC	CNV	MX	CFE	CERRO PRIETO IV - #2	50	GE	GST	T	U	
94/02	WSCC	NWP	OR	USCE	MCNARY 2ND PH #17	129	HY	WAT	P	U	
94/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	P	U	
94/04	ECAR		IN	IP&L	UNDESIGNATED	80	GT	FO2	P	U	
94/04	ECAR		UN	CG&E	NEW GT #2	60	GT	FO2	P	U	
94/04	ECAR		UN	CG&E	NEW GT #3	60	GT	FO2	P	U	
94/04	ERCOT		TX	CPSA	UNDESIGNATED #2	498	ST	COL	P	U	
94/04	NPCC	ONT	ON	ONHY	SMOKEY FALLS EXTN. #1	103.5	HY	WAT	P	U	
94/04	NPCC	ONT	ON	ONHY	SMOKEY FALLS EXTN. #2	103.5	HY	WAT	P	U	
94/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	20	UN	UNK	P	ZZ	
94/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	UNK	P	U	
94/05	NPCC	NY	NY	COEN	INDEPENDENT POWER PRODUCERS	40	ZZ	UNK	P	ZZ	
94/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
94/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	5	ZZ	UNK	P	ZZ	
94/05	WSCC	AZN	AZ	SRP	ROOSEVELT #2	50	HY	WAT	T	U	
94/05	WSCC	NWP	OR	USCE	MCNARY 2ND PH #18	129	HY	WAT	P	U	
94/05	WSCC	RMP	CO	PSC	PAWNEE #2	485	ST	BIT	L	U	
94/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	UNK	P	ZZ	
94/06	SERC	VAC	VA	VIEP	UNDESIGNATED	136	UN	UNK	P	U	
94/06	SPP	N	MO	ASEC	WATSON 1	630	ST	BIT	P	U	
94/06	SPP	N	MO	EMDE	UNKNOWN	32	GT	NG	P	U	
94/06	SPP	N	MO	KACP	HAWTHORN 1	55	ST	BIT	P	U	
94/06	SPP	N	MO	KACP	HAWTHORN 2	55	ST	BIT	P	U	
94/06	WSCC	AZN	AZ	APS	GENERIC COGEN #1	5	CG	UNK	L	CG	
94/06	WSCC	AZN	AZ	APS	SOLAR #2	8	SO	SUN	U	U	
94/06	WSCC	CNV	CA	LDWP	GENERIC 1994	100	ZZ	UNK	P	U	
94/06	WSCC	CNV	CA	PG&E	QF WIND 94	4	WM	WND	P	ZZ	
94/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE #2	70	GT	FO2	P	U	
94/06	WSCC	NWP	NV	SPP	COAL #1	50	ST	BIT	P	U	
94/06	WSCC	NWP	UT	UPLC	BLUNDELL #3	15	GE	GST	P	U	
94/07	ERCOT		TX	ST&M	SAN MIGUEL #2	400	ST	LIG	P	U	J
94/08	WSCC	NWP	OR	USCE	MCNARY 2ND PH #19	129	HY	WAT	P	U	
94/10	MAPP		SA	SPC	FUTURE HYDRO #1	92	HY	WAT	P	U	
94/10	SERC	FL	FL	ORLA	INDIAN RIVER PK#2	53	GT	NG	P	U	
94/10	WSCC	NWP	AB	TAUC	NEW STEAM #1	360	ST	SUB	P	U	
94/11	NPCC	ONT	ON	ONHY	HARMON EXTN. #1	74	HY	WAT	P	U	
94/11	WSCC	CNV	CA	PG&E	GEYSERS #22	140	GE	GST	P	U	
94/11	WSCC	NWP	OR	USCE	MCNARY 2ND PH #20	129	HY	WAT	P	U	
94/12	MAIN	WUM	WI	MPU	MANITOWOC #8	60	ST	BIT	P	U	
94/12	WSCC	CNV	CA	PG&E	SMALL QF HYDRO 94	3	HY	WAT	P	ZZ	
94/SU	MAIN	WUM	WI	MGE	SOLID WASTE	2	UN	REF	P	ZZ	
94/UN	NPCC	NS	NS	NSPC	NEW THERMAL #1	150	ST	BIT	P	U	
94/UN	SERC	SOU	AL	ALEC	CT #2	50	CT	FO2	P	U	
SUBTOTAL						7866					

a) TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup date for this capacity under construction is January 1994.

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)

(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
95/01	ERCOT		TX	TUEC	UNDESIGNATED	650	UN	UNK	P	U	
95/01	MAAC		NJ	AECO	RESOURCE RECOVERY	15	ZZ	REF	P	ZZ	
95/01	NPCC	NE	MA	COMW	GAS TURBINE	60	GT	GAS	P	U	
95/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
95/01	SERC	FL	FL	FLPC	COMBINED CYCLE #1	213	CC	FO6	P	U	
95/01	SERC	FL	FL	FLPL	COMBINED CYCLE #1	346	CC	NG	P	U	
95/01	SERC	FL	FL	FLPL	COMBINED CYCLE #2	346	CC	NG	P	U	
95/01	SERC	FL	FL	FLPL	COMBINED CYCLE #3	346	CC	NG	P	U	
95/01	SERC	FL	FL	LALW	UNKNOWN #1	50	CC	FO6	P	U	
95/01	SERC	FL	FL	TAEC	UNKNOWN CT #3	75	GT	FO2	P	U	
95/01	SERC	VAC	VA	VIEP	UNDESIGNATED	273	UN	UNK	P	U	
95/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	50	ZZ	UNK	P	ZZ	
95/01	WSCC	CNV	CA	PG&E	PROJECT C	3	HY	WAT	P	U	
95/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 95	1	SO	SUN	P	ZZ	
95/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 95	25	HY	WAT	P	ZZ	
95/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 95	2	HY	WAT	P	U	
95/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
95/01	WSCC	NWP	ID	IPC	TWIN FALLS EXPANSION	6	HY	WAT	L	U	
95/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	200	GT	NG	P	U	
95/04	ECAR		IN	IP&L	UNDESIGNATED	80	GT	FO2	P	U	
95/04	ECAR		UN	CG&E	NEW GT #4	60	GT	FO2	P	U	
95/04	ECAR		UN	CG&E	NEW GT #5	60	GT	FO2	P	U	
95/04	SERC	SOU	MS	SOMI	HATTIESBURG	250	ST	BIT	P	U	
95/04	WSCC	RMP	CO	CCS	NIXON #2	350	ST	BIT	P	U	
95/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	20	UN	UNK	P	ZZ	
95/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	UNK	P	U	
95/05	NPCC	NY	NY	CEHG	INDEPENDENT POWER PRODUCERS	11.1	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	64	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	POAS	NIAGARA FALLS	300	HY	WAT	L	U	
95/05	NPCC	NY	NY	POAS	PASNY NEW HYDRO	20	HY	WAT	P	U	
95/05	NPCC	ONT	ON	ONHY	LITTLE LONG EXTN. #1	51	HY	WAT	P	U	
95/05	SERC	VAC	SC	SOCG	UNDETERMINED #3	34	CW	WH	P	U	
95/05	SERC	VAC	SC	SOCG	UNDETERMINED #3	74	CT	NG	P	U	
95/05	SERC	VAC	SC	SOCG	UNDETERMINED #4	34	CW	WH	P	U	
95/05	SERC	VAC	SC	SOCG	UNDETERMINED #4	74	CT	NG	P	U	
95/06	SERC	VAC	VA	VIEP	UNDESIGNATED	87	UN	UNK	P	U	
95/06	SPP	N	MO	EMDE	UNKNOWN	32	GT	NG	P	U	
95/06	WSCC	AZN	AZ	APS	GENERIC COGEN #2	10	CG	UNK	L	CG	
95/06	WSCC	CNV	CA	LDWP	COSO #2	50	GE	ZZ	P	U	
95/06	WSCC	CNV	CA	LDWP	GENERIC 1995	100	ZZ	UNK	P	U	
95/06	WSCC	CNV	NV	LDWP	WHITE PINE #1	750	ST	BIT	P	U	J
95/06	WSCC	CNV	NV	NEVP	ALLEN #1	125	ST	BIT	P	U	
95/08	MAIN	WUM	UN	WEP	SMALL UNITS	8	UN	UNK	P	ZZ	
95/10	ECAR		MD	APS	PURPA #15	50	ST	COL	P	ZZ	
95/10	ECAR		PA	APS	PURPA #16	180	ST	COL	P	ZZ	
95/10	ECAR		PA	APS	PURPA #17	130	ST	SNG	P	ZZ	
95/10	ECAR		UN	APS	PURPA CONTINGENCY	-180[a]	ZZ	UNK	P	ZZ	
95/10	MAPP		SA	SPC	FUTURE FOSSIL #2	276	ST	LIG	P	U	
95/10	SERC	SOU	GA	GEPC	GOAT ROCK #7	39	HY	WAT	P	U	
95/10	WSCC	NWP	AB	TAUC	NEW STEAM #2	360	ST	SUB	P	U	
95/11	SERC	SOU	GA	GEPC	GOAT ROCK #8	39	HY	WAT	P	U	
95/12	ERCOT		TX	CP&L	CT #1	75	GT	NG	P	U	
95/12	ERCOT		TX	WETU	WTU CT #1	75	GT	NG	P	U	
95/12	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	20	UN	UNK	P	U	
95/12	WSCC	CNV	CA	PG&E	QF WIND 95	4	WM	WND	P	ZZ	

a) The PURPA contingency is a quantity to recognize that not all of the PURPA capacity included in the 10-year plan will finally be developed. At this time, it is impossible to predict which of the many projects in the plan may not be developed.

APPENDIX D

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
95/12	WSCC	NWP	WA	BPA	WNP #1[a]	0[b]	NP	UR	V	U	
95/12	WSCC	NWP	WA	BPA	WNP #3[a]	0[b]	NP	UR	V	U	
95/UN	NPCC	NS	NS	NSPC	NEW THERMAL #2	300	ST	BIT	P	U	
95/UN	SERC	SOU	AL	ALEC	LIGNITE #1	125	ST	LIG	P	U	
SUBTOTAL						7023					
96/01	ERCOT		TX	TUEC	UNDESIGNATED	650	UN	UNK	P	U	
96/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
96/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #5	75	CT	FO6	P	U	
96/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #6	75	CT	FO6	P	U	
96/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #7	75	CT	FO6	P	U	
96/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #8	75	CT	FO6	P	U	
96/01	SERC	FL	FL	TAEC	UNKNOWN CT #4	75	ST	FO2	P	U	
Under Review[c]	SERC	TVA	AL	TEVA	BELLEFONTE #2	1212	NP	UR	V	U	
96/01	SPP	SE	LA	GUSU	NELSON 5	540	ST	SUB	P	U	
96/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	51	ZZ	UNK	P	ZZ	
96/01	WSCC	CNV	CA	PG&E	QF COGEN GAS 96	7	CG	NG	P	CG	
96/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 96	1	SO	SUN	P	ZZ	
96/01	WSCC	CNV	CA	SDGE	NON-DEFERRABLE GT	50	GT	NG	P	U	
96/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	100	ZZ	UNK	P	U	
96/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	P	U	
96/04	ECAR		UN	CG&E	NEW GT #6	60	GT	FO2	P	U	
96/04	ECAR		UN	CG&E	NEW GT #7	60	GT	FO2	P	U	
96/04	ECAR		UN	CG&E	NEW GT #8	60	GT	FO2	P	U	
96/04	ECAR		UN	CG&E	NEW GT #9	60	GT	FO2	P	U	
96/04	NPCC	NY	NY	ORRU	LOVETT COMBINED CYCLE	170	CT	NG	P	U	
96/04	NPCC	NY	NY	POAS	PRATTSVILLE	1000	PS	WAT	L	U	
96/05	ERCOT		TX	AUST	WESTERN COAL FLUIDIZED BED	200	ST	COL	P	U	
96/05	MAAC		MD	BCCO	BC CT #1	100	GT	FO2	P	U	
96/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	10	UN	UNK	P	ZZ	
96/05	MAAC		UN	GPUS	COMBUSTION TURBINES	200	GT	NG	P	U	
96/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	UNK	P	U	
96/05	MAIN	WUM	WI	MGE	COGENERATION	15	UN	UNK	P	CG	
96/05	MAPP		UN	NSP	DAKOTAS LIGNITE #1	400	ST	LIG	P	U	
96/05	NPCC	NY	NY	COEN	INDEPENDENT POWER PRODUCERS	40	ZZ	UNK	P	ZZ	
96/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
96/05	SPP	N	MO	STJO	PEAK CAPACITY	50	GT	FO2	P	U	
96/05	SPP	WC	OK	OKGE	UNKNOWN 96	170	GT	FO2	P	U	
96/06	SPP	N	MO	KACP	HAWTHORN 3	70	ST	BIT	P	U	
96/06	SPP	N	MO	KACP	HAWTHORN 4	70	ST	BIT	P	U	
96/06	SPP	N	MO	SPRM	UNDETERMINED	60	GT	NG	P	U	
96/06	WSCC	AZN	AZ	APS	GENERIC COGEN #3	15	CG	UNK	L	CG	
96/06	WSCC	AZN	AZ	APS	REFUSE #1	10	ZZ	REF	L	U	
96/06	WSCC	CNV	CA	LDWP	COSO #3	50	GE	ZZ	P	U	
96/06	WSCC	CNV	CA	LDWP	GENERIC 1996	100	ZZ	UNK	P	U	
96/06	WSCC	CNV	CA	PG&E	QF WIND 96	4	WM	WND	P	ZZ	
96/06	WSCC	CNV	NV	LDWP	WHITE PINE #2	750	ST	BIT	P	U	J
96/06	WSCC	NWP	NV	SPP	COAL #2	50	ST	BIT	P	U	
96/06	WSCC	NWP	UT	UPLC	BLUNDELL #4	15	GE	GST	P	U	
96/07	WSCC	CNV	CA	SCE	OFF PEAK STORAGE	50	ZZ	UNK	P	U	
96/10	SERC	FL	FL	ORLA	INDIAN RIVER PK #3	53	GT	NG	P	U	
96/10	WSCC	NWP	AB	TAUC	GAS TURBINE #1	81	GT	NG	P	U	
96/10	WSCC	NWP	AB	TAUC	GAS TURBINE #2	81	GT	NG	P	U	
96/11	NPCC	NE	ME	BAHE	BASIN MILLS	15.5	HY	WAT	P	U	
96/12	ERCOT		TX	C&SW	COLETO CREEK #2	680	ST	BIT	L	U	J

a) Construction suspended on WNP 1 and 3. Designated as a 2490 MW 'secured option'.
b) WNP 1 and WNP 3 nuclear units were not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. They are included here for information only.
c) TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup date for this capacity under construction is January 1996.

APPENDIX D
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
96/12	ERCOT		TX	HL&P	MALAKOFF #1	645	ST	LIG	P	U	
SUBTOTAL						8686					
97/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
SUBTOTAL						30					
Under Review[a]	ECAR		OH	CAPCO	PERRY #2	1179[b]	NB	UR	V	U	J
SUBTOTAL						1179					
TOTAL						94063(92,884)[b]					

---

a) Construction on Perry 2 has been reduced to a very low level as resources are concentrated on the completion of Perry 1. Meanwhile, all options with respect to the completion and the timing of Perry 2 are being evaluated. A decision regarding the completion of Perry 2 is not expected until all the options have been evaluated.

b) Perry 2 nuclear unit is under review and was not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. It is included here for information only.

APPENDIX E
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NUCLEAR GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/05	ECAR		MI	DECO	FERMI #2	1093	NB	UR	V	U	J
87/05	MAIN	CE	IL	CECO	BRAIDWOOD #1	1090	NP	UR	V	U	
87/05	MAIN	CE	IL	CECO	BYRON #2	1120	NP	UR	V	U	
87/06	SERC	SOU	GA	GEPC	VOGTLE #1	1071	NP	UR	V	U	J
87/07	NPCC	ONT	ON	ONHY	BRUCE B #8	837	CD	UR	V	U	
87/09	NPCC	NY	NY	LOIL	SHOREHAM	809	NB	UR	V	U	
87/09	NPCC	NY	NY	NIMP	NINE MILE POINT #2	1080	NP	UR	V	U	J
87/09	WSCC	AZN	AZ	APS	PALO VERDE #3	1270	NP	UR	V	U	J
87/11	NPCC	NE	NH	PSNH	SEABROOK #1	1150	NP	UR	V	U	
87/12	ECAR		PA	CAPCO	BEAVER VALLEY #2	820	NP	UR	V	U	J
87/12	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #1	1250	NP	UR	V	U	J
87/2Q	MAIN	SCI	IL	IPSW	CLINTON #1	950	NB	UR	V	U	J
87/SU	ECAR		OH	CAPCO	PERRY #1	1179	NB	UR	V	U	J
87/UN[a]	SERC	VAC	NC	CAPO	HARRIS #1	900	NP	UR	V	U	
SUBTOTAL						14619					
88/09	MAIN	CE	IL	CECO	BRAIDWOOD #2	1090	NP	UR	V	U	
88/09	SERC	SOU	GA	GEPC	VOGTLE #2	1071	NP	UR	V	U	J
88/11	NPCC	ONT	ON	ONHY	DARLINGTON #2	881	CD	UR	V	U	
SUBTOTAL						3042					
Under Review[b]	SERC	TVA	TN	TEVA	WATTS BAR #1	1170	NP	UR	V	U	
89/06	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #2	1250	NP	UR	V	U	J
89/07	ERCOT		TX	TUEC	COMANCHE PEAK #1	1150	NP	UR	V	U	J
89/08	NPCC	ONT	ON	ONHY	DARLINGTON #1	881	CD	UR	V	U	
SUBTOTAL						4451					
90/01	ERCOT		TX	TUEC	COMANCHE PEAK #2	1150	NP	UR	V	U	J
Under Review[b]	SERC	TVA	TN	TEVA	WATTS BAR #2	1170	NP	UR	V	U	
90/10	MAAC		PA	PECO	LIMERICK #2	1055	NB	UR	V	U	
SUBTOTAL						3375					
91/05	NPCC	ONT	ON	ONHY	DARLINGTON #3	881	CD	UR	U	U	
SUBTOTAL						881					
92/02	NPCC	ONT	ON	ONHY	DARLINGTON #4	881	CD	UR	U	U	
SUBTOTAL						881					
Under Review[b]	SERC	TVA	AL	TEVA	BELLEFONTE #1	1212	NP	UR	V	U	
SUBTOTAL						1212					
95/12	WSCC	NWP	WA	BPA	WNP #1[c]	0[d]	NP	UR	V	U	
95/12	WSCC	NWP	WA	BPA	WNP #3[c]	0[d]	NP	UR	V	U	
SUBTOTAL						0					

APPENDIX E

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NUCLEAR GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
Under Review[b]	SERC	TVA	AL	TEVA	BELLEFONTE #2	1212	NP	UR	V	U	
SUBTOTAL						1212					
Under Review[e]	ECAR		OH	CAPCO	PERRY #2	1179[d]	NB	UR	V	U	J
SUBTOTAL						1179					
TOTAL						30852 (29,673)[d]					

---

a) Harris 1 received a full power license on January 12, 1987 from the Nuclear Regulatory Commission and the company expects to declare the unit in commercial operation in early 1987.

b) TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup dates for capability under construction are: Watts Bar 1 (2/89), Watts Bar 2 (8/90), Bellafonte 1 (1/94), and Bellafonte 2 (1/96).

c) Construction suspended on WNP 1 and WNP 3. Designated as a 2490 MW 'secured option'.

d) WNP 1, WNP 3, and Perry 2 were not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. The units are listed here for information only.

e) Construction activity on Perry 2 has been reduced to a very low level as resources are concentrated on the completion of Perry 1. Meanwhile, all options with respect to the completion and timing of Perry 2 are being evaluated. A decision regarding the completion of Perry 2 is not expected until all options have been evaluated.

APPENDIX F
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

COAL-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/01	SERC	SOU	GA	GEPC	SCHERER #3	833	ST	BIT	V	U	J
87/04	SERC	FL	FL	JACO	ST. JOHNS RIVER #1	550	ST	BIT	V	U	J
87/05	MAPP		MN	NSP	RIVERSIDE #7	51	ST	COL	V	U	
87/07	SERC	FL	FL	ORLA	STANTON #1	415	ST	BIT	V	U	J
87/07	WSCC	CNV	UT	LDWP	INTERMOUNTAIN #2	800	ST	BIT	V	U	J
87/09	WSCC	RMP	CO	CUEA	NUCLA #4	64	ST	BIT	V	U	
87/11	MAPP		MN	NSP	SHERBURNE CO #3	800	ST	SUB	V	U	J
SUBTOTAL						3513					
88/01	ERCOT		TX	LCRA	F. P. P. #3	344	ST	SUB	V	U	
88/10	SERC	FL	FL	JACO	ST. JOHNS RIVER #2	550	ST	BIT	V	U	J
88/12	ECAR		IN	AEP	ROCKPORT #2	1300	ST	COL	V	U	
SUBTOTAL						2194					
89/02	SERC	SOU	GA	GEPC	SCHERER #4	808	ST	BIT	U	U	
89/05	SERC	SOU	AL	ALAP	MILLER #3	666	ST	BIT	U	U	
89/06	WSCC	AZN	AZ	TEP	SPRINGERVILLE #2	360	ST	SUB	U	U	
89/10	WSCC	NWP	AB	EDMP	GENESEE #2	386	ST	SUB	U	U	
SUBTOTAL						2220					
90/10	WSCC	NWP	AB	TAUO	SHEERNESS #2	366	ST	SUB	U	U	J
SUBTOTAL						366					
91/01	ERCOT		TX	TUEC	TWIN OAK #1	750	ST	LIG	U	U	
91/05	SERC	SOU	AL	ALAP	MILLER #4	666	ST	BIT	U	U	
91/05	SPP	WC	OK	OKGE	COGENERATOR - [illegible]	300	ST	BIT	P	U	
91/05	WSCC	AZN	AZ	SRP	CORONADO #3	350	ST	SUB	U	U	
91/06	ECAR		OH	CG&E	W. H. ZIMMER #1	1300	ST	COL	U	U	J
91/07	ECAR		KY	LG&E	TRIMBLE COUNTY #1	495	ST	COL	U	U	
91/10	MAPP		SA	SPC	FUTURE FOSSIL #1	280	ST	LIG	P	U	
91/10	WSCC	NWP	AB	EDMP	GENESEE #1	386	ST	SUB	P	U	
91/UN	NPCC	NS	NS	NSPC	TRENTON #6	150	ST	BIT	P	U	
SUBTOTAL						4677					
92/04	ERCOT		TX	CPSA	UNDESIGNATED #1	498	ST	COL	P	U	
92/05	MAAC		MD	BGCO	BRANDON SHORES #2	640	ST	BIT	V	U	
92/06	SPP	N	MO	EMDE	UNKNOWN	75	ST	COL	P	U	
92/10	ECAR		KY	EKPC	J. K. SMITH #1	600	ST	COL	U	U	
92/UN	SERC	VAC	NC	CAPO	MAYO #2[a]	690	ST	COL	U	U	
SUBTOTAL						2503					
93/01	ERCOT		TX	TUEC	TWIN OAK #2	750	ST	LIG	U	U	
93/11	NPCC	NB	NB	NBPO	PULVERIZED COAL #1	335	ST	BIT	P	U	
SUBTOTAL						1085					
94/02	ERCOT		TX	TUEC	FOREST GROVE #1	750	ST	LIG	U	U	
94/04	ERCOT		TX	CPSA	UNDESIGNATED #2	498	ST	COL	P	U	
94/05	WSCC	RMP	CO	PSC	PAWNEE #2	485	ST	BIT	L	U	
94/06	SPP	N	MO	ASEC	WATSON 1	630	ST	BIT	P	U	
94/06	SPP	N	MO	KACP	HAWTHORN 1	55	ST	BIT	P	U	
94/06	SPP	N	MO	KACP	HAWTHORN 2	55	ST	BIT	P	U	
94/06	WSCC	NWP	NV	SPP	COAL #1	50	ST	BIT	P	U	

a) Due to regulatory rulings requiring scrubbers, CAPO is considering lower cost options to replace Mayo 2. Upon confirmation of the availability of the lower cost capacity, CAPO will cancel Mayo 2.

APPENDIX F
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

COAL-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
94/07	ERCOT		TX	ST&M	SAN MIGUEL #2	400	ST	LIG	P	U	J
94/10	WSCC	NWP	AB	TAUC	NEW STEAM #1	360	ST	SUB	P	U	
94/12	MAIN	WUM	WI	MPU	MANITOWOC #8	60	ST	BIT	P	U	
94/UN	NPCC	NS	NS	NSPC	NEW THERMAL #1	150	ST	BIT	P	U	
SUBTOTAL						3493					
95/04	SERC	SOU	MS	SOMI	HATTIESBURG	250	ST	BIT	P	U	
95/04	WSCC	RMP	CO	CCS	NIXON #2	350	ST	BIT	P	U	
95/06	WSCC	CNV	NV	LDWP	WHITE PINE #1	750	ST	BIT	P	U	J
95/06	WSCC	CNV	NV	NEVP	ALLEN #1	125	ST	BIT	P	U	
95/10	MAPP		SA	SPC	FUTURE FOSSIL #2	276	ST	LIG	P	U	
95/10	WSCC	NWP	AB	TAUC	NEW STEAM #2	360	ST	SUB	P	U	
95/UN	NPCC	NS	NS	NSPC	NEW THERMAL #2	300	ST	BIT	P	U	
95/UN	SERC	SOU	AL	ALEC	LIGNITE #1	125	ST	LIG	P	U	
SUBTOTAL						2536					
96/01	SPP	SE	LA	GUSU	NELSON 5	540	ST	SUB	P	U	
96/05	ERCOT		TX	AUST	WESTERN COAL FLUIDIZED BED	200	ST	COL	P	U	
96/05	MAPP		UN	NSP	DAKOTAS LIGNITE #1	400	ST	LIG	P	U	
96/06	SPP	N	MO	KACP	HAWTHORN 3	70	ST	BIT	P	U	
96/06	SPP	N	MO	KACP	HAWTHORN 4	70	ST	BIT	P	U	
96/06	WSCC	CNV	NV	LDWP	WHITE PINE #2	750	ST	BIT	P	U	J
96/06	WSCC	NWP	NV	SPP	COAL #2	50	ST	BIT	P	U	
96/12	ERCOT		TX	CNSW	COLETO CREEK #2	680	ST	BIT	L	U	J
96/12	ERCOT		TX	HL&P	MALAKOFF #1	645	ST	LIG	P	U	
SUBTOTAL						3405					
TOTAL						25992					

APPENDIX G
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/01	MAPP		WI	NSP	JIM FALLS #4	.6	HY	WAT	V	U	
87/01	WSCC	NWP	UT	UAMP	ECHO #1	1.3	HY	WAT	V	U	
87/01	WSCC	NWP	UT	UAMP	ECHO #2	1.3	HY	WAT	V	U	
87/01	WSCC	NWP	UT	UAMP	ECHO #3	1.4	HY	WAT	V	U	
87/03	WSCC	CNV	CA	CDWR	THERMALITO DIV. DAM	3	HY	WAT	V	U	
87/05	WSCC	CNV	CA	USMP	STAMPEDE	3	HY	WAT	V	U	
87/06	NPCC	NE	VT	NEES	WILDER #3	3.2	HY	WAT	P	U	
87/06	WSCC	NWP	UT	UAMP	EAST CANYON #1	1	HY	WAT	U	U	
87/06	WSCC	NWP	UT	UAMP	EAST CANYON #2	1	HY	WAT	U	U	
87/07	SERC	VAC	VA	VIEP	NORTH ANNA HYDRO	1	HY	WAT	U	U	
87/07	WSCC	AZN	NM	LAC	EL VADO DAM	8	HY	WAT	V	U	
87/07	WSCC	CNV	CA	CCSF	MOCCASIN	2	HY	WAT	V	U	
87/11	MAPP		MN	MP	BLANCHARD #3	6	HY	WAT	U	U	
87/11	NPCC	NE	VT	VTGP	BELDEN	.6	HY	WAT	T	U	
SUBTOTAL						33					
88/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 38	2	HY	WAT	P	U	
88/01	WSCC	CNV	CA	SCE	BALSAM MEADOW HYDRO	200	HY	WAT	V	U	
88/01	WSCC	CNV	CA	TID	DON PEDRO UNIT #4	28	HY	WAT	L	U	J
88/02	WSCC	CNV	CA	PG&E	MOKELUMNE	1	HY	WAT	L	U	
88/02	WSCC	CNV	CA	PG&E	SALT SPRINGS #3	6	HY	WAT	L	U	
88/02	WSCC	CNV	CA	SNCL	BLACK BUTTE DAM	6	HY	WAT	U	U	
88/03	MAIN	WUM	WI	KAUK	COMBINED LOCKS	6	HY	WAT	P	U	
88/03	WSCC	CNV	CA	SNCL	HIGH LINE CANAL	0	HY	WAT	T	U	
88/04	NPCC	NE	ME	BAHE	WEST ENFIELD	6.8	HY	WAT	P	U	
88/05	MAAC		PA	ALEC	RAYSTOWN #1	1	HY	WAT	U	U	
88/05	MAAC		PA	ALEC	RAYSTOWN #2	1	HY	WAT	U	U	
88/05	MAAC		PA	ALEC	RAYSTOWN #3	1	HY	WAT	U	U	
88/05	NPCC	NE	VT	VTGP	HIGHGATE FALLS	3.1	HY	WAT	U	U	
88/06	WSCC	NWP	UT	UAMP	MOON LAKE #4-6	5	HY	WAT	T	U	
88/10	SPP	SE	AR	AREC	HS 13 UNIT #1	6	HY	WAT	U	U	
88/10	WSCC	AZN	NM	FARM	NAVAJO DAM	30	HY	WAT	U	U	
88/11	NPCC	NE	VT	VTGP	HUNTINGTON FALLS	.6	HY	WAT	T	U	
88/11	SPP	SE	AR	AREC	HS 13 UNIT #2	6	HY	WAT	U	U	
88/11	WSCC	CNV	CA	SCE	SMALL HYDRO	0	HY	WAT	T	U	
88/12	SPP	SE	AR	AREC	HS 13 UNIT #3	5	HY	WAT	U	U	
88/12	WSCC	CNV	CA	CCSF	O'SHAUGHNESSY	3	HY	WAT	P	U	
SUBTOTAL						317					
89/01	NPCC	NE	CT	NOEU	BULLS BRIDGE #7	6.6	HY	WAT	P	U	
89/01	NPCC	NE	CT	NOEU	FALLS VILLAGE #4	6.3	HY	WAT	P	U	
89/01	NPCC	NY	NY	NIMP	H.E.A.R.	2	HY	WAT	P	U	
89/01	WSCC	CNV	CA	PG&E	CHAMBERS/JACKASS DIV.	0	HY	WAT	L	U	
89/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 89	2	HY	WAT	P	U	
89/06	NPCC	QUE	QB	HYQB	MANIC 5 PA #1	245	HY	WAT	U	U	
89/07	WSCC	AZN	NM	LAC	ABIQUIU #1	7	HY	WAT	P	U	
89/07	WSCC	AZN	NM	LAC	ABIQUIU #2	7	HY	WAT	P	U	
89/08	NPCC	QUE	QB	HYQB	MANIC 5 PA #2	245	HY	WAT	U	U	
89/08	WSCC	RMP	WY	USLM	SHOSHONE #1	3	HY	WAT	U	U	
89/08	WSCC	RMP	WY	USLM	SHOSHONE #2	6	HY	WAT	U	U	
89/08	WSCC	RMP	WY	USLM	SHOSHONE #3	6	HY	WAT	U	U	
89/08	WSCC	RMP	WY	USLM	SHOSHONE #4	6	HY	WAT	U	U	

APPENDIX G
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
89/10	NPCC	QUE	QB	HYQB	MANIC 5 PA #3	245	HY	WAT	U	U	
89/11	NPCC	QUE	QB	HYQB	MANIC 5 PA #4	245	HY	WAT	U	U	
89/12	NPCC	NY	NY	NIMP	H.E.A.R.	10	HY	WAT	P	U	
89/12	WSCC	CNV	CA	PG&E	GRIZZLY	18	HY	WAT	P	U	
SUBTOTAL						1060					
90/01	WSCC	CNV	CA	NCPA	HYDROELEC. PROJ. #1	200	HY	WAT	U	U	J
90/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 90	2	HY	WAT	P	U	
90/01	WSCC	CNV	CA	RDNG	LAKE REDDING	8	HY	WAT	L	U	
90/04	NPCC	NE	VT	VTGP	C. RUTLAND	.3	HY	WAT	P	U	
90/05	NPCC	NY	NY	POAS	PASNY NEW HYDRO	12	HY	WAT	P	U	
90/06	NPCC	NE	VT	VTGP	FAIRFAX FALLS	2.8	HY	WAT	P	U	
90/06	NPCC	NY	NY	NIMP	H.E.A.R.	12	HY	WAT	P	U	
90/09	NPCC	NE	ME	CEMP	LEWISTON	25	HY	WAT	L	U	
90/09	WSCC	CNV	CA	PG&E	DOAKS RIDGE	1	HY	WAT	L	U	
90/09	WSCC	NWP	OR	USCE	BONNEVILLE FW SITE #3	2	HY	WAT	T	U	
90/09	WSCC	NWP	OR	USCE	BONNEVILLE FW SITE #4	3	HY	WAY	T	U	
90/09	WSCC	NWP	WA	USCE	BONNEVILLE FW SITE #6	3	HY	WAT	T	U	
90/11	MAPP		MB	MHEB	LIMESTONE #1	120	HY	WAT	U	U	
90/12	MAPP		MB	MHEB	LIMESTONE #2	120	HY	WAT	U	U	
90/UN	SERC	SOU	AL	ALEC	DEMOPOLIS HYDRO	50	HY	WAT	P	U	
SUBTOTAL						561					
91/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 91	2	HY	WAT	P	U	
91/01	WSCC	CNV	CA	PG&E	WEST POINT #2	4	HY	WAT	L	U	
91/02	MAPP		MB	MHEB	LIMESTONE #3	120	HY	WAT	U	U	
91/03	WSCC	CNV	CA	PG&E	HAAS-KINGS PROJECT	40	HY	WAT	P	U	
91/04	MAPP		MB	MHEB	LIMESTONE #4	120	HY	WAT	U	U	
91/05	NPCC	NY	NY	POAS	PASNY NEW HYDRO	3	HY	WAT	P	U	
91/06	NPCC	NY	NY	NIMP	H.E.A.R.	1	HY	WAT	P	U	
91/07	MAPP		MB	MHEB	LIMESTONE #5	120	HY	WAT	U	U	
91/07	NPCC	NE	MA	NOEU	CABOT #7	23.9	HY	WAT	P	U	
91/07	NPCC	NY	NY	NIMP	H.E.A.R.	49	HY	WAT	P	U	
91/10	MAPP		MB	MHEB	LIMESTONE #6	120	HY	WAT	U	U	
91/10	WSCC	CNV	CA	PG&E	PH AT CRESTA DAM	0	HY	WAT	L	U	
91/10	WSCC	CNV	CA	PG&E	PH AT ROCK CREEK DAM	1	HY	WAT	L	U	
91/11	NPCC	NE	ME	BAHE	MILFORD	.7	HY	WAT	P	U	
91/12	MAPP		MB	MHEB	LIMESTONE #7	120	HY	WAT	U	U	
SUBTOTAL						725					
92/01	WSCC	CNV	CA	CDWR	DEVIL CANYON #3	80	HY	WAT	L	U	
92/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 92	2	HY	WAT	P	U	
92/01	WSCC	NWP	ID	IPC	SWAN FALLS REBUILD	19	HY	WAT	T	U	
92/01	WSCC	NWP	WA	SCL	SOUTH FORK TOLT	15	HY	WAT	L	U	
92/03	WSCC	CNV	CA	PG&E	CRESTA UNIT #3	18	HY	WAT	L	U	
92/03	WSCC	CNV	CA	PG&E	ROCK CREEK UNIT #3	36	HY	WAT	L	U	
92/04	SERC	SOU	AL	ALAP	THURLOW #4	40	HY	WAT	P	U	
92/04	SERC	SOU	AL	ALAP	YATES #3	30	HY	WAT	P	U	
92/05	MAPP		MB	MHEB	LIMESTONE #8	120	HY	WAT	U	U	
92/05	MAPP		MN	NSP	HENNEPIN ISLAND #6	6	HY	WAT	P	U	
92/06	WSCC	NWP	OR	USCE	STRUBE UNIT #1	5	HY	WAT	T	U	
92/07	NPCC	QUE	QB	HYQB	LG 2 PA #1	316	HY	WAT	T	U	
92/07	WSCC	CNV	CA	LDWP	SMALL HYDRO DEV	6	HY	WAT	P	U	
92/07	WSCC	NWP	OR	USCE	COUGAR UNIT #3	40	HY	WAT	T	U	
92/08	MAPP		MB	MHEB	LIMESTONE #9	120	HY	WAT	U	U	
92/09	NPCC	QUE	QB	HYQB	LG 2 PA #2	316	HY	WAT	T	U	

APPENDIX G

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS (UTILITY OWNED)

(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
92/11	MAPP		MB	MHEB	LIMESTONE #10	120	HY	WAT	U	U	
92/11	NPCC	NE	ME	BAHE	VEAZIE	4	HY	WAT	P	U	
92/11	NPCC	QUE	QB	HYQB	LG 2 PA #3	316	HY	WAT	T	U	
SUBTOTAL						1609					
93/01	WSCC	CNV	CA	PG&E	CRANE VALLEY PROJECT	0	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	TULE PROJECT	0	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 93	2	HY	WAT	P	U	
93/01	WSCC	CNV	CA	RDNG	LAKE RED BLUFF	4	HY	WAT	L	U	
93/06	WSCC	NWP	OR	USCE	BLUE R LAKE PH UNIT #1	10	HY	WAT	P	U	
93/06	WSCC	NWP	OR	USCE	BLUE R LAKE PH UNIT #2	10	HY	WAT	P	U	
93/07	NPCC	QUE	QB	HYQB	LG 2 PA #4	316	HY	WAT	T	U	
93/08	WSCC	NWP	OR	USCE	MCNARY 2ND PH #15	129	HY	WAT	P	U	
93/09	NPCC	QUE	QB	HYQB	LG 2 PA #5	316	HY	WAT	T	U	
93/10	NPCC	ONT	ON	ONHY	KIPLING EXTN. #1	66	HY	WAT	P	U	
93/10	WSCC	NWP	WA	USCE	WYNOOCHEE UNIT #1	2	HY	WAT	P	U	
93/10	WSCC	NWP	WA	USCE	WYNOOCHEE UNIT #2	4	HY	WAT	P	U	
93/10	WSCC	NWP	WA	USCE	WYNOOCHEE UNIT #3	4	HY	WAT	P	U	
93/11	NPCC	ONT	ON	ONHY	LITTLE JACKFISH #1	64.5	HY	WAT	P	U	
93/11	NPCC	ONT	ON	ONHY	LITTLE JACKFISH #2	64.5	HY	WAT	P	U	
93/11	NPCC	QUE	QB	HYQB	LG 2 PA #6	316	HY	WAT	T	U	
93/11	WSCC	NWP	OR	USCE	MCNARY 2ND PH #16	129	HY	WAT	P	U	
SUBTOTAL						1437					
94/01	WSCC	AZN	AZ	SRP	ROOSEVELT #1	50	HY	WAT	T	U	
94/01	WSCC	CNV	CA	CDWR	MOJAVE SIPHON #1	7	HY	WAT	P	U	
94/01	WSCC	CNV	CA	CDWR	MOJAVE SIPHON #2	6	HY	WAT	P	U	
94/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 94	2	HY	WAT	P	U	
94/02	WSCC	NWP	OR	USCE	MCNARY 2ND PH #17	129	HY	WAT	P	U	
94/04	NPCC	ONT	ON	ONHY	SMOKEY FALLS EXTN. #1	103.5	HY	WAT	P	U	
94/04	NPCC	ONT	ON	ONHY	SMOKEY FALLS EXTN. #2	103.5	HY	WAT	P	U	
94/05	WSCC	AZN	AZ	SRP	ROOSEVELT #2	50	HY	WAT	T	U	
94/05	WSCC	NWP	OR	USCE	MCNARY 2ND PH #18	129	HY	WAT	P	U	
94/08	WSCC	NWP	OR	USCE	MCNARY 2ND PH #19	129	HY	WAT	P	U	
94/10	MAPP		SA	SPC	FUTURE HYDRO #1	92	HY	WAT	P	U	
94/11	NPCC	ONT	ON	ONHY	HARMON EXTN. #1	74	HY	WAT	P	U	
94/11	WSCC	NWP	OR	USCE	MCNARY 2ND PH #20	129	HY	WAT	P	U	
SUBTOTAL						1004					
95/01	WSCC	CNV	CA	PG&E	PROJECT C	3	HY	WAT	P	U	
95/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 95	2	HY	WAT	P	U	
95/01	WSCC	NWP	ID	IPC	TWIN FALLS EXPANSION	6	HY	WAT	L	U	
95/05	NPCC	NY	NY	POAS	NIAGARA FALLS	300	HY	WAT	L	U	
95/05	NPCC	NY	NY	POAS	PASNY NEW HYDRO	20	HY	WAT	P	U	
95/05	NPCC	ONT	ON	ONHY	LITTLE LONG EXTN. #1	51	HY	WAT	P	U	
95/10	SERC	SOU	GA	GEPC	GOAT ROCK #7	39	HY	WAT	P	U	
95/11	SERC	SOU	GA	GEPC	GOAT ROCK #8	39	HY	WAT	P	U	
SUBTOTAL						460					
96/11	NPCC	NE	ME	BAHE	BASIN MILLS	15.5	HY	WAT	P	U	
SUBTOTAL						16					
TOTAL						7222					

APPENDIX H

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

PUMPED STORAGE GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
90/03	SERC	SOU	GA	SEPA	RICHARD B. RUSSELL #5	75	PS	WAT	P	U	J
90/06	SERC	VAC	GA	SEPA	RICHARD B. RUSSELL #6	75	PS	WAT	P	U	J
90/09	SERC	SOU	GA	SEPA	RICHARD B. RUSSELL #7	75	PS	WAT	P	U	J
90/12	SERC	VAC	GA	SEPA	RICHARD B. RUSSELL #8	75	PS	WAT	P	U	J
SUBTOTAL						300					
91/UN	SERC	VAC	SC	DUPC	BAD CREEK #1	250	PS	WAT	U	U	
91/UN	SERC	VAC	SC	DUPC	BAD CREEK #2	250	PS	WAT	U	U	
SUBTOTAL						500					
92/UN	SERC	VAC	SC	DUPC	BAD CREEK #3	250	PS	WAT	U	U	
92/UN	SERC	VAC	SC	DUPC	BAD CREEK #4	250	PS	WAT	U	U	
SUBTOTAL						500					
93/01	WSCC	CNV	CA	RDNG	SPRING CREEK PS	115	PS	WAT	L	U	
SUBTOTAL						115					
96/04	NPCC	NY	NY	POAS	PRATTSVILLE	1000	PS	WAT	L	U	
SUBTOTAL						1000					
TOTAL						2415					

APPENDIX I
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

OIL-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/01	WSCC	NWP	UT	UAMP	ST. GEORGE #1	7	IC	FO2	V	U	
87/01	WSCC	NWP	UT	UAMP	ST. GEORGE #2	7	IC	FO2	V	U	
87/11	NPCC	ONT	ON	OHHY	DARLINGTON COMPLEX	40[a]	GT	FO2	V	U	
SUBTOTAL						54					
88/05	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	6.2	IC	FO2	P	U	
88/05	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	6.3	IC	FO2	P	U	
SUBTOTAL						13					
89/09	WSCC	CNV	MX	CFE	ROSARITO II - #1	145	ST	FO6	P	U	
SUBTOTAL						145					
91/12	WSCC	CNV	MX	CFE	ROSARITO II - #2	145	ST	FO6	T	U	
SUBTOTAL						145					
92/04	ECAR		IN	IP&L	UNDESIGNATED	80	GT	FO2	P	U	
92/12	MAPP		IA	ISU	BURLINGTON CT #1	50	GT	FO2	P	U	
SUBTOTAL						130					
93/04	ECAR		UN	CG&E	NEW GT #1	60	GT	FO2	P	U	
93/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE #1	70	GT	FO2	P	U	
93/UN	SERC	SOU	AL	ALEC	CT #1	50	CT	FO2	P	U	
SUBTOTAL						180					
94/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #1	75	CT	FO6	P	U	
94/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #2	75	CT	FO6	P	U	
94/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #3	75	CT	FO6	P	U	
94/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #4	75	CT	FO6	P	U	
94/01	SERC	FL	FL	TAEC	UNKNOWN CT #1	75	GT	FO2[b]	P	U	
94/01	SERC	FL	FL	TAEC	UNKNOWN CT #2	75	GT	FO2[b]	P	U	
94/04	ECAR		IN	IP&L	UNDESIGNATED	80	GT	FO2	P	U	
94/04	ECAR		UN	CG&E	NEW GT #2	60	GT	FO2	P	U	
94/04	ECAR		UN	CG&E	NEW GT #3	60	GT	FO2	P	U	
94/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE #2	70	GT	FO2	P	U	
94/UN	SERC	SOU	AL	ALEC	CT #2	50	CT	FO2	P	U	
SUBTOTAL						770					
95/01	SERC	FL	FL	FLPC	COMBINED CYCLE #1	213	CC	FO6	P	U	
95/01	SERC	FL	FL	LALW	UNKNOWN #1	50	CC	FO6	P	U	
95/01	SERC	FL	FL	TAEC	UNKNOWN CT #3	75	GT	FO2	P	U	
95/04	ECAR		IN	IP&L	UNDESIGNATED	80	GT	FO2	P	U	
95/04	ECAR		UN	CG&E	NEW GT #4	60	GT	FO2	P	U	
95/04	ECAR		UN	CG&E	NEW GT #5	60	GT	FO2	P	U	
SUBTOTAL						538					
96/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #5	75	CT	FO6	P	U	
96/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #6	75	CT	FO6	P	U	
96/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #7	75	CT	FO6	P	U	
96/01	SERC	FL	FL	FLPC	COMBUSTION TURBINE #8	75	CT	FO6	P	U	
96/01	SERC	FL	FL	TAEC	UNKNOWN CT #4	75	ST	FO2	P	U	
96/04	ECAR		UN	CG&E	NEW GT #6	60	GT	FO2	P	U	
96/04	ECAR		UN	CG&E	NEW GT #7	60	GT	FO2	P	U	

a) The Darlington Complex combustion turbines capability estimates exclude CTU's which will not be available for systems use due to their importance as emergency standby generation.

b) The decision whether these units will burn light oil or heavy oil has not been made.

APPENDIX I

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

OIL-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
96/04	ECAR		IN	CG&E	NEW GT #8	60	GT	FO2	P	U	
96/04	ECAR		IN	CG&E	NEW GT #9	60	GT	FO2	P	U	
96/05	MAAC		MD	BCCO	BC CT #1	100	GT	FO2	P	U	
96/05	SPP	N	MO	STJO	PEAK CAPACITY	50	GT	FO2	P	U	
96/05	SPP	WC	OK	OKGE	UNKNOWN 96	170	GT	FO2	P	U	
SUBTOTAL						935					
TOTAL						2910					

APPENDIX J

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GAS-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/01	WSCC	NWP	UT	UAMP	BOUNTIFUL CITY	7	IC	NG	V	U	
87/06	WSCC	CNV	CA	SNCL	SANTA CLARA CT #2	25	GT	NG	U	U	
87/09	ECAR		OH	BMLW	BRYAN #4	15	GT	NG	P	U	
87/10	ERCOT		TX	AUST	GAS TURBINE #1	50	GT	NG	U	U	
87/10	ERCOT		TX	AUST	GAS TURBINE #2	50	GT	NG	U	U	
87/10	ERCOT		TX	AUST	GAS TURBINE #3	50	GT	NG	U	U	
87/10	ERCOT		TX	AUST	GAS TURBINE #4	50	GT	NG	U	U	
87/10	MAPP		SA	SPC	FUTURE GT #1	54	GT	NG	P	U	
87/12	WSCC	NWP	UT	UAMP	PAYSON #1	2.5	IC	NG	P	U	
87/12	WSCC	NWP	UT	UAMP	PAYSON #2	2.5	IC	NG	P	U	
SUBTOTAL						306					
88/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	195	GT	NG	U	U	
88/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	GT	NG	T	U	
88/05	SPP	WC	OK	OKGE	COGENERATOR - SMITH	100	GT	NG	P	U	
88/10	MAPP		SA	SPC	FUTURE GT #2	108	GT	NG	P	U	
88/12	SERC	FL	FL	FOPL	KING #9	30	CA	NG	U	U	
SUBTOTAL						823					
89/02	SERC	FL	FL	OKLA	INDIAN RIVER PK#1	53	GT	NG	P	U	
89/10	MAPP		SA	SPC	FUTURE GT #3	108	GT	NG	P	U	
89/UN	SERC	SOU	AL	ALEC	CAES #1	50	ZZ	NG	P	U	
89/UN	SERC	SOU	UN	SEAP	NOT AVAILABLE	70	GT	GAS	P	U	
SUBTOTAL						281					
90/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	GT	NG	T	U	
90/05	ERCOT		TX	AUST	GAS TURBINES	150	GT	NG	P	U	
90/05	SERC	VAC	SC	SOCG	HAGOOD #1	74	CT	NG	P	U	
90/05	SERC	VAC	SC	SOCG	HAGOOD #2	74	CT	NG	P	U	
90/06	SERC	VAC	VA	VIEP	CHESTERFIELD #7	127	GT	NG	L	U	
90/06	WSCC	CNV	NV	NEVP	COMBINED CYCLE #1	210	CW	RG	P	U	
90/07	NPCC	NE	VT	VTGP	W. RUTLAND	210	CC	NG	P	U	
90/10	WSCC	CNV	CA	PG&E	SHELL-MARTINEZ COGEN	49	CG	NG	P	U	
SUBTOTAL						1284					
91/01	NPCC	NE	MA	COMW	COMBINED CYCLE	89	CC	GAS	P	U	
91/01	NPCC	NE	MA	COMW	COMBINED CYCLE	89	CC	GAS	P	U	
91/01	SERC	FL	FL	HSTM	G. W. IVEY #22	20	IC	NG	P	U	
91/05	MAAC		PN	GPUS	COMBUSTION TURBINES	200	GT	NG	P	U	
91/06	SERC	VAC	VA	VIEP	CHESTERFIELD #7	58	ST	NG	L	U	
91/06	WSCC	CNV	NV	NEVP	COMBINED CYCLE #2	210	CW	RG	P	U	
91/07	ERCOT		TX	BEPC	UNDESIGNATED	150	GT	NG	P	U	
91/UN	SERC	SOU	AL	ALEC	CAES #2	50	ZZ	NG	P	U	
SUBTOTAL						866					
92/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	300	GT	NG	P	U	
92/06	SPP	S	MO	SPRM	UNDETERMINED	50	GT	NG	P	U	
92/07	ERCOT		TX	BEPC	UNDESIGNATED	150	UN	NG	P	U	
SUBTOTAL						500					
93/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	P	U	
93/05	ERCOT		TX	AUST	COMBINED CYCLE	30	GT	NG	P	U	
93/05	SERC	VAC	SC	SOCG	UNDETERMINED #1	74	GT	NG	P	U	

APPENDIX J
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GAS-FIRED GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
93/05	SERC	VAC	SC	SOCG	UNDETERMINED #2	74	CT	NG	P	U	
93/06	SPP	N	MO	EMDE	ENERGY CENTER NO. 3	75	CA	NG	P	U	
93/07	ERCOT		TX	BEPC	UNDESIGNATED	150	UN	NG	P	U	
93/UN	SERC	SOU	UN	SEAP	NOT AVAILABLE	70	GT	GAS	P	U	
SUBTOTAL						623					
94/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	P	U	
94/06	SPP	N	MO	EMDE	UNKNOWN	32	GT	NG	P	U	
94/10	SERC	FL	FL	OKLA	INDIAN RIVER PK#2	53	GT	NG	P	U	
SUBTOTAL						215					
95/01	NPCC	NE	MA	COMW	GAS TURBINE	60	GT	GAS	P	U	
95/01	SERC	FL	FL	FLPL	COMBINED CYCLE #1	346	CC	NG	P	U	
95/01	SERC	FL	FL	FLPL	COMBINED CYCLE #2	346	CC	NG	P	U	
95/01	SERC	FL	FL	FLPL	COMBINED CYCLE #3	346	CC	NG	P	U	
95/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	200	GT	NG	P	U	
95/05	SERC	VAC	SC	SOCG	UNDETERMINED #3	74	CT	NG	P	U	
95/05	SERC	VAC	SC	SOCG	UNDETERMINED #4	74	CT	NG	P	U	
95/06	SPP	N	MO	EMDE	UNKNOWN	32	GT	NG	P	U	
95/12	ERCOT		TX	CP&L	CT #1	75	GT	NG	P	U	
95/12	ERCOT		TX	WETU	WTU CT #1	75	GT	NG	P	U	
SUBTOTAL						1628					
96/01	WSCC	CNV	CA	SDGE	NON-DEFERRABLE GT	50	GT	NG	P	U	
96/03	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	P	U	
96/04	NPCC	NY	NY	ORRU	LOVETT COMBINED CYCLE	170	CT	NG	P	U	
96/05	MAAC		PN	GPUS	COMBUSTION TURBINES	200	GT	NG	P	U	
96/06	SPP	N	MO	SPRM	UNDETERMINED	60	GT	NG	P	U	
96/10	SERC	FL	FL	OKLA	INDIAN RIVER PK #3	53	GT	NG	P	U	
96/10	WSCC	NWP	AB	TAUC	GAS TURBINE #1	81	GT	NG	P	U	
96/10	WSCC	NWP	AB	TAUC	GAS TURBINE #2	81	GT	NG	P	U	
SUBTOTAL						825					
TOTAL						7151					

APPENDIX K

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

OTHER[a] GENERATING UNIT ADDITIONS (UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/01	WSCC	CNV	MX	CFE	CERRO PRIETO II - #2	100	GE	GST	V	U	
87/06	WSCC	CNV	CA	SCE	SALTON SEA #1	9	GE	GST	V	U	
87/07	WSCC	CNV	CA	GLEN	SCHOLL CANYON #2	12	IC	REF	U	U	
SUBTOTAL						121					
88/04	WSCC	NWP	WA	TCL	STEAM PLANT #2	43	CG	REF	T	U	
88/05	WSCC	CNV	CA	CCPA	COLDWATER CRK UNIT 1	61	GE	GST	L	U	J
88/05	WSCC	CNV	CA	SDGE	HEBER	45	GE	GST	V	U	J
88/10	WSCC	CNV	CA	CCPA	COLDWATER CRK UNIT 2	61	GE	GST	L	U	J
SUBTOTAL						210					
89/06	WSCC	AZN	AZ	APS	SOLAR #1	2	SO	SUN	U	U	
89/10	ERCOT		TX	AUST	REFUSE #1	20	ST	REF	P	U	
89/12	WSCC	CNV	CA	PG&E	GEYSERS #21	140	GE	GST	T	U	
SUBTOTAL						162					
90/01	WSCC	CNV	CA	CDWR	SOUTH GEYSERS	35	GE	GST	L	U	
90/01	WSCC	CNV	CA	SCE	COOLWATER IGCC	100	ST	ZZ	V	U	
90/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	150	ZZ	UNK	P	U	
90/04	WSCC	CNV	CA	LDWP	COSO #1	10	GE	ZZ	P	U	
90/07	WSCC	CNV	CA	SCE	BATTERY STORAGE	10	ZZ	UNK	P	U	
SUBTOTAL						305					
91/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
91/04	ERCOT		TX	CPSA	MSW-LCP	36	ST	REF	P	U	
91/05	MAAC		PN	PPCO	CT (OR COGEN)	85	GT	UNK	P	U	
91/12	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	15	IC	UNK	P	U	
SUBTOTAL						186					
92/01	SERC	VAC	VA	VIEP	UNDESIGNATED	88	UN	UNK	P	U	
92/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
92/05	MAAC		PN	PPCO	CT (OR COGEN)	85	GT	UNK	P	U	
92/06	SERC	VAC	VA	VIEP	UNDESIGNATED	258	UN	UNK	P	U	
92/06	WSCC	CNV	CA	LDWP	GENERIC 1992	100	ZZ	UNK	P	U	
92/06	WSCC	NWP	UT	UPLC	BLUNDELL #2	15	GE	GST	P	U	
92/11	WSCC	CNV	CA	PG&E	GEYSERS #19	55	GE	GST	P	U	
SUBTOTAL						651					
93/01	SERC	VAC	VA	VIEP	UNDESIGNATED	135	UN	UNK	P	U	
93/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
93/02	WSCC	CNV	MX	CFE	CERRO PRIETO IV - #1	50	GE	GST	L	U	
93/05	MAAC		PN	PPCO	CT (OR COGEN)	85	GT	UNK	P	U	
93/05	SERC	VAC	NC	SOCG	UNDETERMINED #1	34	CW	WH	P	U	
93/05	SERC	VAC	SC	SOCG	UNDETERMINED #2	34	CW	WH	P	U	
93/06	SERC	VAC	VA	VIEP	UNDESIGNATED	190	UN	UNK	P	U	
93/06	WSCC	CNV	CA	LDWP	GENERIC 1993	100	ZZ	UNK	P	U	
SUBTOTAL						678					
94/01	SERC	VAC	VA	VIEP	UNDESIGNATED	125	UN	UNK	P	U	
94/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
94/02	WSCC	CNV	MX	CFE	CERRO PRIETO IV - #2	50	GE	GST	T	U	
94/05	MAAC		PN	PPCO	GCC COMPONENT	135	CT	UNK	P	U	
94/06	SERC	VAC	VA	VIEP	UNDESIGNATED	136	UN	UNK	P	U	
94/06	WSCC	AZN	AZ	APS	SOLAR #2	8	SO	SUN	U	U	
94/06	WSCC	CNV	CA	LDWP	GENERIC 1994	100	ZZ	UNK	P	U	
94/06	WSCC	NWP	UT	UPLC	BLUNDELL #3	15	GE	GST	P	U	

a) Includes utility owned capacity other than nuclear, coal-, oil-, and gas-fired, conventional hydro, and pumped storage generating units.

APPENDIX K

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

OTHER[a] GENERATING UNIT ADDITIONS (UTILITY OWNED)

(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
94/11	WSCC	CNV	CA	PG&E	GEYSERS #22	140	GE	GST	P	U	
SUBTOTAL						749					
95/01	ERCOT		TX	TUEC	UNDESIGNATED	650	UN	UNK	P	U	
95/01	SERC	VAC	VA	VIEP	UNDESIGNATED	273	UN	UNK	P	U	
95/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
95/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	UNK	P	U	
95/05	SERC	VAC	SC	SOCG	UNDETERMINED #3	34	CW	WH	P	U	
95/05	SERC	VAC	SC	SOCG	UNDETERMINED #4	34	CW	WH	P	U	
95/06	SERC	VAC	VA	VIEP	UNDESIGNATED	87	UN	UNK	P	U	
95/06	WSCC	CNV	CA	LDWP	COSO #2	50	GE	ZZ	P	U	
95/06	WSCC	CNV	CA	LDWP	GENERIC 1995	100	ZZ	UNK	P	U	
95/12	MAAC		MD	DPLC	EASTON UNIDENTIFIED CT	20	PN	UNK	P	P	
SUBTOTAL						1423					
96/01	ERCOT		TX	TUEC	UNDESIGNATED	650	UN	UNK	P	U	
96/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	100	ZZ	UNK	P	U	
96/05	MAAC		UN	PPCO	GCC COMPONENT	125	CT	UNK	P	U	
96/06	WSCC	AZN	AZ	APS	REFUSE #1	10	ZZ	REF	L	U	
96/06	WSCC	CNV	CA	LDWP	COSO #3	50	GE	ZZ	P	U	
96/06	WSCC	CNV	CA	LDWP	GENERIC 1996	100	ZZ	UNK	P	U	
96/06	WSCC	NWP	UT	UPLC	BLUNDELL #4	15	GE	GST	P	U	
96/07	WSCC	CNV	CA	SCE	OFF PEAK STORAGE	50	ZZ	UNK	P	U	
SUBTOTAL						1100					
TOTAL						5605					

---

a) Includes utility owned capacity other than nuclear, coal-, oil-, and gas-fired, conventional hydro, and pumped storage generating units.

APPENDIX L
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NON-UTILITY GENERATOR(NUG)^{a}ADDITIONS
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/01	MAAC		PA	GPUS	INDIANA UNIVERSITY - QF	20	IC	NG	P	ZZ	
87/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	66	ZZ	UNK	P	ZZ	
87/01	WSCC	CNV	CA	PG&E	QF COGEN GAS 87	207	CG	NG	P	CG	
87/01	WSCC	CNV	CA	PG&E	QF COGEN NON-GAS 87	242	CG	UNK	P	CG	
87/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 87	1	HY	WAT	P	ZZ	
87/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 87	1	HY	WAT	P	ZZ	
87/01	WSCC	NWP	OR	PPL	JIM BOYD HYDRO	1	HY	WAT	P	ZZ	
87/01	WSCC	NWP	WA	PSPL	BELLINGHAM WASTE	4	CG	REF	V	CG	
87/01	WSCC	NWP	WA	TGL	MAIN CANAL HEADWORKS	26	HY	WAT	V	ZZ	
87/01	WSCC	RMP	CO	PSC	75 ST. WASTE WATER	1	ZZ	ZZ	V	ZZ	
87/01	WSCC	RMP	CO	PSC	SUNSHINE HYDRO	1	HY	WAT	P	ZZ	
87/02	MAAC		NJ	PSCO	STARMARK ENERGY SYSTEM,INC	3	ZZ	NG	P	ZZ	
87/02	MAAC		PA	GPUS	XIDEX - GREEN HOUSE - QF	13	GT	NG	P	ZZ	
87/03	WSCC	RMP	CO	PSC	BETASSO HYDRO	1	HY	WAT	V	ZZ	
87/04	WSCC	RMP	CO	PSC	GEORGETOWN LAKE HYDRO	0	HY	WAT	V	ZZ	
87/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	1	US	UNK	P	ZZ	
87/05	NPCC	NY	NY	CEHG	INDEPENDENT POWER PRODUCERS	23	ZZ	UNK	P	ZZ	
87/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	7	ZZ	UNK	P	ZZ	
87/05	NPCC	NY	NY	NYSE	INDEPENDENT POWER PRODUCERS	200	ZZ	UNK	P	ZZ	
87/05	NPCC	NY	NY	NIMO	INDEPENDENT POWER PRODUCERS	550	ZZ	UNK	P	ZZ	
87/06	MAIN	WUM	WI	WEP	SMALL UNITS	10	US	UNK	P	ZZ	
87/06	WSCC	CNV	CA	WAMP	WEBER GT	8	CC	NG	P	CG	
87/06	WSCC	NWP	ID	WWPC	MISC. SMALL HYDRO (2)	1	HY	WAT	P	ZZ	
87/06	WSCC	RMP	CO	PSC	AMERICAN ATLAS #1	75	CG	NG	V	CG	
87/06	WSCC	RMP	CO	PSC	BLUE RIVER	2	HY	WAT	P	ZZ	
87/07	ECAR		MI	CP	NON-UTILITY GENERATION	2	ZZ	UNK	V	ZZ	
87/07	ECAR		PA	APS	APS BEAVER VALLEY (PURPA)	121	ST	COL	V	ZZ	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	3	IC	UNK	P	ZZ	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	41	IC	UNK	P	ZZ	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	2	CC	UNK	P	CG	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	41	CG	UNK	P	CG	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	17	GE	GST	P	ZZ	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	61	PV	SUN	P	ZZ	
87/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	30	WM	WND	P	ZZ	
87/07	WSCC	NWP	OR	PPL	JOHNSTON LUMBER CO.	6	CG	WD	P	CG	
87/08	WSCC	CNV	CA	WAMP	WARM SPRINGS DAM	1	HY	WAT	P	ZZ	
87/09	WSCC	CNV	CA	LDWP	HYPERION ENERGY SYS	23	CG	UNK	P	CG	
87/09	WSCC	NWP	OR	PPL	FARMERS I. D. #3	0	HY	WAT	P	ZZ	
87/09	WSCC	RMP	CO	PSC	NORTH FORK HYDRO	6	HY	WAT	P	ZZ	
87/10	WSCC	NWP	CA	PPL	ROBERT TIFT HYDRO	1	HY	WAT	P	ZZ	
87/10	WSCC	NWP	OR	PPL	N. CANAL DAM IRRIG.	1	HY	WAT	P	ZZ	
87/11	WSCC	NWP	OR	PPL	COOS COUNTY WASTE	1	CG	REF	P	CG	
87/11	WSCC	RMP	CO	PSC	PLATORO PROJECT	0	HY	WAT	P	ZZ	
87/12	WSCC	CNV	CA	PG&E	QF WIND 87	9	WM	WND	P	ZZ	
87/12	WSCC	CNV	CA	PG&E	SMALL QF HYDRO 87	12	HY	WAT	P	ZZ	
87/12	WSCC	RMP	CO	PSC	HIGHLAND CANAL HYDRO	2	HY	WAT	V	ZZ	
SUBTOTAL						1396					
88/01	ECAR		MI	CP	NON-UTILITY GENERATION	57	ZZ	UNK	V	ZZ	
88/01	MAAC		PA	GPUS	QUALIFYING FACILITIES	130	US	UNK	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	60	ZZ	UNK	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	QF COGEN FOR GAS 88	45	CG	NG	P	CG	
88/01	WSCC	CNV	CA	PG&E	QF COGEN NON-GAS 88	578	CG	UNK	P	CG	
88/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 88	2	HY	WAT	P	ZZ	

a) Non-utility generators(NUGs) are facilities for generating electricity which are not owned exclusively by an electric utility and which operate connected to an electric utility system. The data reported on NUGs is limited to only those non-utility generators which are projected to sell electrical energy or capacity, or both, to electric utilities and which are reported by utilities as generating unit additions in Item 28 of each Regional Reliability Council's EI-411 report. NUGs treated by utilities as reductions in load or as capacity imports are excluded from Appendix L. The capacities shown for NUGs may include more than one unit.

APPENDIX L
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NON-UTILITY GENERATOR(NUG)[a] ADDITIONS
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
88/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 88	2	HY	WAT	P	ZZ	
88/01	WSCC	NWP	ID	IPC	COGEN #4	20	CG	UNK	P	CG	
88/01	WSCC	NWP	OR	PPL	LACOMB IRRIG. DIST.	0	HY	WAT	P	ZZ	
88/01	WSCC	NWP	OR	PPL	LAKEVIEW POWER CO.	13	CG	WD	P	CG	
88/01	WSCC	NWP	OR	PPL	MISC. SMALL HYDRO (3)	3	HY	WAT	P	ZZ	
88/01	WSCC	NWP	WA	PPL	CITY OF WALLA WALLA	1	HY	WAT	P	ZZ	
88/01	WSCC	RMP	CO	PSC	COGEN AT PSC	65	CG	NG	V	CG	
88/01	WSCC	RMP	CO	PSC	ORODELL HYDRO	0	HY	WAT	U	ZZ	
88/03	WSCC	NWP	ID	WWPC	MISC. SMALL HYDRO (4)	1	HY	WAT	U	ZZ	
88/04	WSCC	NWP	ID	SCL	LUCKY PEAK	100	HY	WAT	U	ZZ	
88/05	MAAC		NJ	PSEG	NON-UTILITY GENERATION	84	UN	UNK	P	ZZ	
88/05	MAAC		UN	GPUS	QUALIFYING FACILITIES	4	UN	UNK	P	ZZ	
88/05	NPCC	NY	NY	CEHG	INDEPENDENT POWER PRODUCERS	9.7	ZZ	UNK	P	ZZ	
88/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
88/05	NPCC	NY	NY	NIMP	INDEPENDENT POWER PRODUCERS	119	ZZ	UNK	P	ZZ	
88/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	UNK	P	ZZ	
88/06	WSCC	CNV	CA	PG&E	QF WIND 88	19	WM	WND	P	ZZ	
88/06	WSCC	CNV	CA	PG&E	SMALL QF HYDRO 88	30	HY	WAT	P	ZZ	
88/06	WSCC	NWP	WA	WWPC	MISC. SMALL HYDRO (1)	1	HY	WAT	U	ZZ	
88/07	ECAR		WV	APS	HANNIBAL LK&D (PURPA)	30	HY	WAT	U	ZZ	
88/07	ECAR		WV	APS	PURPA #1	1	HY	WAT	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	106	IC	UNK	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	2	IC	UNK	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	355	CG	UNK	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	690	CG	ZZ	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	6	CG	ZZ	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	1	GE	GST	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	177	GE	GST	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	3	HY	WAT	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	51	SO	SUN	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	36	WM	WND	P	ZZ	
88/08	ECAR		PA	APS	ALLEGHENY LK&D #5 (PURPA)	4	HY	WAT	U	ZZ	
88/09	MAAC		UN	GPUS	QUALIFYING FACILITIES	125	UN	UNK	P	ZZ	
88/09	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	75	CG	UNK	P	CG	
88/10	ECAR		PA	APS	ALLEGHENY LK&D #6 (PURPA)	5	HY	WAT	U	ZZ	
88/10	ECAR		PA	APS	PURPA #2	1	ST	UNK	P	ZZ	
88/10	WSCC	CNV	CA	PG&E	UNID. ROCK CREEK II	30	HY	WAT	U	ZZ	
88/10	WSCC	RMP	CO	UMUC	MCPHEE POWER PLANT	1	HY	WAT	P	ZZ	
88/12	ECAR		PA	APS	PURPA #3	6	HY	WAT	P	ZZ	
88/12	ECAR		WV	APS	PURPA #4	5	HY	WAT	P	ZZ	
88/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	105	UN	UNK	P	ZZ	
SUBTOTAL						[illegible]					
89/01	ECAR		MI	CP	NON-UTILITY GENERATION	56	ZZ	UNK	U	ZZ	
89/01	ECAR		WV	APS	PURPA #5	4	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	69	ZZ	UNK	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF COGEN NON-GAS 89	108	CG	UNK	P	CG	
89/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 89	3	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 89	2	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	[illegible]	[illegible]	13	CG	WD	P	CG	
89/01	WSCC	NWP	ID	IPC	COGEN #5	11	CG	UNK	P	CG	
89/01	WSCC	NWP	OR	PPL	GENERAL OR POWER PROJ.	1	HY	WAT	P	ZZ	
89/01	WSCC	NWP	OR	PPL	[illegible] INDUSTRIES	4	CG	WD	P	CG	
89/01	WSCC	NWP	OR	PPL	[illegible] IRRIG. DIST.	1	HY	WAT	P	ZZ	
89/01	WSCC	RMP	[illegible]	[illegible]	[illegible]	15	CG	[illegible]	P	CG	
89/02	MAAC		NJ	[illegible]	NON-UTILITY GENERATION	[illegible]	UN	UNK	P	ZZ	

a) See Appendix L, page 1, footnote a.

APPENDIX L

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NON-UTILITY GENERATOR(NUG)[a] ADDITIONS
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
89/05	NPCC	NY	NY	CEHG	INDEPENDENT POWER PRODUCERS	5.9	ZZ	UNK	P	ZZ	
89/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
89/05	NPCC	NY	NY	NIMP	INDEPENDENT POWER PRODUCERS	48	ZZ	UNK	P	ZZ	
89/06	MAAC		UN	GPUS	QUALIFYING FACILITIES	21	UN	UNK	P	ZZ	
89/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	REF	P	ZZ	
89/06	WSCC	CNV	CA	PG&E	QF WIND 89	1	WM	WND	P	ZZ	
89/06	WSCC	NWP	WA	GCPD	P. E. C. HEADWORKS	7	HY	WAT	U	ZZ	
89/07	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	35	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	69	IC	ZZ	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	291	CG	NG	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	5	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	64	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	100	GE	GST	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	1	HY	WAT	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	31	SO	SUN	P	ZZ	
89/09	MAAC		NJ	AECO	QUALIFYING FACILITY	118	CT	NG	P	ZZ	
89/09	MAAC		NJ	AECO	QUALIFYING FACILITY	50	CT	NG	P	ZZ	
89/09	WSCC	RMP	CO	PSC	PUEBLO CHEMICAL	55	CG	NG	T	CG	
89/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	265	UN	UNK	P	ZZ	
89/12	WSCC	CNV	CA	PG&E	SMALL QF HYDRO 89	1	HY	WAT	P	ZZ	
SUBTOTAL						1740					
90/01	ECAR		PA	APS	PURPA #6	11	HY	WAT	P	ZZ	
90/01	MAAC		NJ	AECO	QUALIFYING FACILITY	42	CT	NG	P	ZZ	
90/01	MAAC		NJ	AECO	RESOURCE RECOVERY	12	ZZ	REF	P	ZZ	
90/01	NPCC	NE	UN	OCSP	OCEAN ST. PWR. #1 (3rd Party)	210	CC	NG	L	ZZ	
90/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	FRENCH CREEK	0	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	38	ZZ	UNK	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF COGEN FOR GAS 90	30	CG	NG	P	CG	
90/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 90	1	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 90	1	HY	WAT	P	ZZ	
90/01	WSCC	NWP	ID	IPC	COGEN #6	7	CG	UNK	P	CG	
90/01	WSCC	NWP	OR	PPL	LITTLE GREYBACK	0	HY	WAT	P	ZZ	
90/01	WSCC	RMP	CO	PSC	AMERICAN ATLAS #3	80	CG	BIT	T	CG	
90/01	WSCC	RMP	CO	PSC	HORSE MOUNTAIN POWER GEN.	50	CG	BIT	T	CG	
90/03	ECAR		MI	CP	NON-UTILITY GENERATION	800	ZZ	NG	U	ZZ	
90/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	270	UN	UNK	P	ZZ	
90/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	NIMP	INDEPENDENT POWER PRODUCERS	191	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	ORRU	INDEPENDENT POWER PRODUCERS	15	ZZ	UNK	P	ZZ	
90/05	WSCC	RMP	CO	PSC	STAGECOACH	1	HY	WAT	T	ZZ	
90/06	WSCC	CNV	CA	PG&E	QF WIND 90	1	WM	WND	P	ZZ	
90/07	ECAR		PA	APS	PURPA #7	46	ST	COL	P	ZZ	
90/07	ECAR		PA	APS	PURPA #8	80	ST	COL	P	ZZ	
90/07	ECAR		WV	APS	PURPA #9	50	ST	COL	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	20	IC	UNK	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	16	CG	NG	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	7	CG	UNK	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	48	GE	GST	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	32	SO	SUN	P	ZZ	
90/09	WSCC	RMP	CO	USUC	RIDGEWAY POWER PLANT	4	HY	WAT	P	ZZ	
90/12	ECAR		MI	CP	NON-UTILITY GENERATION	425	ZZ	NG	U	ZZ	
90/12	MAAC		NJ	AECO	QUALIFYING FACILITY	140	CT	NG	P	ZZ	

a) See Appendix L, page 1, footnote a.

APPENDIX L
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NON-UTILITY GENERATOR(NUG)[a] ADDITIONS
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
90/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	260	UN	UNK	P	ZZ	
90/12	WSCC	RMP	CO	USUC	TOWAOC	11	HY	WAT	P	ZZ	
SUBTOTAL						2949					
91/01	ECAR		MI	CP	NON-UTILITY GENERATION	78	ZZ	UNK	U	ZZ	
91/01	ECAR		PA	APS	PURPA #10	2	HY	WAT	P	ZZ	
91/01	ECAR		PA	APS	PURPA #11	80	ST	COL	P	ZZ	
91/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	49	ZZ	UNK	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	SOFAR	118	HY	WAT	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 91	1	HY	WAT	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 91	1	HY	WAT	P	ZZ	
91/01	WSCC	NWP	ID	IPC	COGEN #7	6	CG	UNK	P	CG	
91/03	WSCC	RMP	CO	PSC	SOUTH CANYON GEO	10	GE	GST	T	ZZ	
91/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	35	UN	UNK	P	ZZ	
91/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	10	ZZ	UNK	P	ZZ	
91/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	REF	P	ZZ	
91/06	WSCC	CNV	CA	PG&E	QF WIND 91	4	WM	WND	P	ZZ	
91/07	ECAR		PA	APS	PURPA #12	80	ST	COL	P	ZZ	
91/07	ECAR		UN	APS	PURPA #13	80	ST	COL	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	5	GE	GST	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	21	SO	SUN	P	ZZ	
91/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	125	UN	UNK	P	ZZ	
91/SU	MAIN	WUM	WI	MGE	COGENERATION	12	UN	UNK	P	CG	
SUBTOTAL						777					
92/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	48	ZZ	UNK	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 92	1	SO	SUN	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	UNID. DISTR. FP HYDRO 92	1	HY	WAT	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	UNID. DISTR. QF HYDRO 92	1	HY	WAT	P	ZZ	
92/01	WSCC	NWP	ID	IPC	COGEN #8	6	CG	UNK	P	CG	
92/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	20	UN	UNK	P	ZZ	
92/05	NPCC	NY	NY	COEN	INDEPENDENT POWER PRODUCERS	70	ZZ	UNK	P	ZZ	
92/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
92/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	5	ZZ	UNK	P	ZZ	
92/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	UNK	P	ZZ	
92/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	2	CG	UNK	P	CG	
92/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	21	SO	SUN	P	ZZ	
92/09	ECAR		PA	APS	PURPA #14	80	ST	COL	P	ZZ	
92/12	MAAC		UN	GPUS	QUALIFYING FACILITIES	450	UN	UNK	P	ZZ	
92/12	WSCC	CNV	CA	PG&E	QF WIND 92	4	WM	WND	P	ZZ	
SUBTOTAL						769					
93/01	MAAC		NJ	AECO	RESOURCE RECOVERY	11	ZZ	REF	P	ZZ	
93/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
93/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	49	ZZ	UNK	P	ZZ	
93/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 93	1	SO	SUN	P	ZZ	
93/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 93	25	HY	WAT	P	ZZ	
93/01	WSCC	NWP	OR	IPC	SMALL HYDRO	6	HY	WAT	P	ZZ	
93/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	20	UN	UNK	P	ZZ	
93/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
93/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	10	ZZ	UNK	P	ZZ	
93/12	WSCC	CNV	CA	PG&E	QF WIND 93	4	WM	WND	P	ZZ	
SUBTOTAL						176					

---

a) See Appendix L, page 1, footnote a.

APPENDIX L

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

NON-UTILITY GENERATOR(NUG)[a] ADDITIONS
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
94/01	NPCC	NE	UN	OCSP	OCEAN ST. PWR. #2 (3rd Party)	210	CC	NG	P	ZZ	
94/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
94/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	48	ZZ	UNK	P	ZZ	
94/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 94	1	SO	SUN	P	ZZ	
94/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 94	25	HY	WAT	P	ZZ	
94/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	20	UN	UNK	P	ZZ	
94/05	NPCC	NY	NY	COEN	INDEPENDENT POWER PRODUCERS	40	ZZ	UNK	P	ZZ	
94/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
94/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	5	ZZ	UNK	P	ZZ	
94/06	MAIN	WUM	UN	WEP	SMALL UNITS	10	UN	UNK	P	ZZ	
94/06	WSCC	AZN	AZ	APS	GENERIC COGEN #1	5	CG	UNK	L	CG	
94/06	WSCC	CNV	CA	PG&E	QF WIND 94	4	WM	WND	P	ZZ	
94/12	WSCC	CNV	CA	PG&E	SMALL OF HYDRO 94	3	HY	WAT	P	ZZ	
94/SU	MAIN	WUM	WI	MGE	SOLID WASTE	2	UN	REF	P	ZZ	
SUBTOTAL						423					
95/01	MAAC		NJ	AECO	RESOURCE RECOVERY	15	ZZ	REF	P	ZZ	
95/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
95/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	50	ZZ	UNK	P	ZZ	
95/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 95	1	SO	SUN	P	ZZ	
95/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 95	25	HY	WAT	P	ZZ	
95/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	20	UN	UNK	P	ZZ	
95/05	NPCC	NY	NY	CEHG	INDEPENDENT POWER PRODUCERS	11.1	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	POAS	INDEPENDENT POWER PRODUCERS	64	ZZ	UNK	P	ZZ	
95/06	WSCC	AZN	AZ	APS	GENERIC COGEN #2	10	CG	UNK	L	CG	
95/08	MAIN	WUM	UN	WEP	SMALL UNITS	8	UN	UNK	P	ZZ	
95/10	ECAR		MD	APS	PURPA #15	50	ST	COL	P	ZZ	
95/10	ECAR		PA	APS	PURPA #16	180	ST	COL	P	ZZ	
95/10	ECAR		PA	APS	PURPA #17	130	ST	SNG	P	ZZ	
95/10	ECAR		UN	APS	PURPA CONTINGENCY	-180[b]	ZZ	UNK	P	ZZ	
95/12	WSCC	CNV	CA	PG&E	QF WIND 95	4	WM	WND	P	ZZ	
SUBTOTAL						438					
96/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
96/01	WSCC	CNV	CA	PG&E	NON-UTILITY GENERATION	51	ZZ	UNK	P	ZZ	
96/01	WSCC	CNV	CA	PG&E	QF COGEN GAS 96	7	CG	NG	P	CG	
96/01	WSCC	CNV	CA	PG&E	QF PHOTOVOLTAIC 96	1	SO	SUN	P	ZZ	
96/05	MAAC		NJ	PSCO	NON-UTILITY GENERATION	10	UN	UNK	P	ZZ	
96/05	MAIN	WUM	WI	MGE	COGENERATION	15	UN	UNK	P	CG	
96/05	NPCC	NY	NY	COEN	INDEPENDENT POWER PRODUCERS	40	ZZ	UNK	P	ZZ	
96/05	NPCC	NY	NY	LOIL	INDEPENDENT POWER PRODUCERS	20	ZZ	UNK	P	ZZ	
96/06	WSCC	AZN	AZ	APS	GENERIC COGEN #3	15	CG	UNK	L	CG	
96/06	WSCC	CNV	CA	PG&E	QF WIND 96	4	WM	WND	P	ZZ	
SUBTOTAL						193					
97/01	NPCC	ONT	ON	ONHY	COGENERATION	30	ZZ	UNK	P	ZZ	
SUBTOTAL						30					
TOTAL						11717					

---

a) See Appendix L, page 1, footnote a.

b) The PURPA contingency is a quantity to recognize that not all of the PURPA capacity included in the ten-year plan will finally be developed. At this time, it is impossible to predict which of the many projects in the plan may not be developed.

APPENDIX M
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

JOINTLY OWNED GENERATING UNIT ADDITIONS(UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

IN-SVC DATE	REGION	NAME	MW-S	TYPE	FUEL	COMMENTS
87/01	SERC	SCHERER #3	833	ST	BIT	GEPC(625MW),GUPC(208)-DECLARED OPERATIONAL 1/1/87
87/04	SERC	ST. JOHNS RIVER #1	550	ST	BIT	JACO(275MW),FLPL(275)
87/05	ECAR	FERMI #2	1093	NB	UR	DECO(956MW),WPSC(137)
87/06	SERC	VOGTLE #1	1071	NP	UR	JOINTLY OWNED BY GEPC,OPC,MEAG, AND DALTON
87/07	SERC	STANTON #1	415	ST	BIT	ORLA(284MW),FMPA(111),KUAM(20)
87/07	WSCC	INTERMOUNTAIN #2	800	ST	BIT	LDWP(357MW),ICPA(169),ANHM(105),OTHER(169)
87/09	NPCC	NINE MILE POINT #2	1080	NP	UR	NIMP(443MW),NEYE(195),LOIL(194),ROGE(151),CEHG(97)
87/09	WSCC	PALO VERDE #3	1270	NP	UR	APS(370MW),SCE(211),SRP(222),OTHER(467)
87/11	MAPP	SHERBURNE CO #3	800	ST	SUB	NSP(472MW),SMMP(328)
87/12	ECAR	BEAVER VALLEY #2	820	NP	UR	CE(364MW),OE(344),DLCO(112)
87/12	ERCOT	SOUTH TEXAS PROJECT #1	1250	NP	UR	AUST(200MW),CP&L(315),CPSA(350),HL&P(385)
87/2Q	MAIN	CLINTON #1	950	NB	UR	IP(822MW),SYPC(67),WIPC(61)
87/SU	ECAR	PERRY #1	1179	NB	UR	CE(600MW),OE(416),DLCO(161)
SUBTOTAL			12111			
88/01	WSCC	DON PEDRO UNIT #4 -	28	HY	WAT	TID(19MW),MID(9);OPERATOR:TID
88/05	WSCC	COLDWATER CRK UNIT 1	61	GE	GST	SMUD(30.5MW),MID(24.4),SNCL(6.1)-FORMERLY CCPA #1
88/05	WSCC	HEBER	45	GE	GST	SDGE(39MW),IID(5),CDWR(1)-DEMO. OP. 6/85
88/09	SERC	VOGTLE #2	1071	NP	UR	JOINTLY OWNED BY GEPC,OPC,MEAG, AND DALTON
88/10	SERC	ST. JOHNS RIVER #2	550	ST	BIT	JACO(275MW),FLPL(275)
88/10	WSCC	COLDWATER CRK UNIT 2	61	GE	GST	SMUD(30.5MW),MID(24.4),SNCL(6.1)-FORMERLY CCPA #1
SUBTOTAL			1816			
89/06	ERCOT	SOUTH TEXAS PROJECT #2	1250	NP	UR	AUST(200MW),CP&L(315),CPSA(350),HL&P(385)
89/07	ERCOT	COMANCHE PEAK #1	1150	NP	UR	TUEC(1035MW),OTHER 115MW UNDER LITIGATION
SUBTOTAL			2400			
90/01	ERCOT	COMANCHE PEAK #2	1150	NP	UR	TUEC(1035MW),OTHER 115MW UNDER LITIGATION
90/01	WSCC	HYDROELEC. PROJ. #1	200	HY	WAT	JOINT PLANT - OPERATOR : NCPA
90/03	SERC	RICHARD B. RUSSELL #5	75	PS	WAT	8 UNITS WILL = 600MW , SOCO/VACAR SPLIT 50/50
90/06	SERC	RICHARD B. RUSSELL #6	75	PS	WAT	8 UNITS WILL=600 MW, SOCO/VACAR SPLIT 50/50
90/09	SERC	RICHARD B. RUSSELL #7	75	PS	WAT	8 UNITS WILL = 600MW , SOCO/VACAR SPLIT 50/50
90/10	WSCC	SHEERNESS #2	366	ST	SUB	TAUC(183MW),APL(183)
90/12	SERC	RICHARD B. RUSSELL #8	75	PS	WAT	8 UNITS WILL=600 MW, SOCO/VACAR SPLIT 50/50
SUBTOTAL			2016			
91/06	ECAR	W. H. ZIMMER #1	1300	ST	COL	CG&E(605MW),DP&L(365),AEP(330) - CONV. NP TO COL
SUBTOTAL			1300			
94/07	ERCOT	SAN MIGUEL #2	400	ST	LIG	ST&M(200MW),BEPC(200)
SUBTOTAL			400			
95/06	WSCC	WHITE PINE #1	750	ST	BIT	LDWP(293MW),NEVP(188),SPP(75),OTHER(194)
SUBTOTAL			750			
96/06	WSCC	WHITE PINE #2	750	ST	BIT	LDWP(293MW),NEVP(188),SPP(75),OTHER(194)
96/12	ERCOT	COLETO CREEK #2	680	ST	BIT	CP&L(352MW),WETU(228),PSOK(50),SOEP(50)
SUBTOTAL			1430			
Under Review[a]	ECAR	PERRY #2	1179	NB	UR	CE(602MW),OE(416),DLCO(161)
SUBTOTAL			1179			
TOTAL			23402			

[a] Construction on Perry 2 has been reduced to a very low level as resources are concentrated on the completion of Perry 1. Meanwhile, all options with respect to the completion and the timing of Perry 2 are being evaluated. A decision regarding the completion of Perry 2 is not expected until all the options have been evaluated.

APPENDIX N

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT RETIREMENTS(UTILITY AND NON-UTILITY OWNED)

(January 1, 1987 - December 31, 1996)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/01	SERC	FL	FL	CLWU	TOM G. SMITH S-2	0	ST	NG	R	U	
87/01	SERC	FL	FL	SEBM	PARK STREET #1	0	IC	FO2	R	U	
87/01	WSCC	CNV	CA	PG&E	UNIDENTIFIED COGENERATION	46	CG	FO6	R	U	
87/01	WSCC	CNV	CA	SCE	ETIWANDA #1	132	ST	FO4	R	U	
87/01	WSCC	CNV	CA	SCE	ETIWANDA #2	132	ST	FO4	R	U	
87/01	WSCC	NWP	UT	UAMP	BOUNTIFUL CITY #1	.3	IC	NG	R	U	
87/01	WSCC	NWP	UT	UAMP	BOUNTIFUL CITY #2	.3	IC	NG	R	U	
87/01	WSCC	NWP	UT	UAMP	BOUNTIFUL CITY #3	.4	IC	NG	R	U	
87/02	MAAC		PA	PECO	SCHUYLKILL #3	12	ST	FO6	R	U	
87/02	MAPP		IA	IPS	NEAL DIESEL #1	2.75	IC	FO2	R	U	
87/02	MAPP		IA	IPS	NEAL DIESEL #2	2.75	IC	FO2	R	U	
87/04	NPCC	NE	VT	VTGP	MILTON STEAM	4	ST	FO6	R	U	
87/04	NPCC	NE	VT	VTGP	RUTLAND #1 GT	4.2	GT	FO2	R	U	
87/04	NPCC	NE	VT	VTGP	RUTLAND #2 GT	4.32	GT	FO2	R	U	
87/05	MAAC		PA	PECO	RICHMOND DIESEL	2.7	IC	FO2	R	U	
87/07	WSCC	CNV	CA	PG&E	UNIDENTIFIED COGENERATION	41	CG	FO6	R	U	
87/07	WSCC	CNV	CA	PG&E	UNIDENTIFIED COGENERATION	46	CG	FO6	R	U	
87/07	WSCC	CNV	CA	PG&E	UNIDENTIFIED COGENERATION	46	CG	FO6	R	U	
87/10	NPCC	NE	MA	HOGE	CABOT #9	4.8	ST	FO6	R	U	
87/11	MAPP		MN	SMMP	AUSTIN DOWNTOWN #1	4.25	ST	NG	R	U	
87/11	MAPP		MN	SMMP	AUSTIN DOWNTOWN #3	8.51	ST	NG	R	U	
87/11	MAPP		MN	SMMP	AUSTIN DOWNTOWN #4	12.45	ST	NG	R	U	
87/11	MAPP		MN	SMMP	AUSTIN DOWNTOWN #5	5.7	GT	NG	R	U	
87/11	MAPP		MN	SMMP	BLOOMING PRAIRIE #1	1.35	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	BLOOMING PRAIRIE #2	1.26	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	FAIRMONT #6	6.48	IC	NG	R	U	
87/11	MAPP		MN	SMMP	FAIRMONT #7	6.28	IC	NG	R	U	
87/11	MAPP		MN	SMMP	GRAND MARAIS #2	.67	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	GRAND MARAIS #5	1.31	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	GRAND MARAIS #6	1.25	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	LITCHFIELD #5	2.02	IC	NG	R	U	
87/11	MAPP		MN	SMMP	LITCHFIELD #6	1.99	IC	NG	R	U	
87/11	MAPP		MN	SMMP	MORA #2	.99	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	MORA #5	5.87	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	MORA #6	6.97	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	NEW PRAGUE #2	4.73	IC	NG	R	U	
87/11	MAPP		MN	SMMP	NEW PRAGUE #3	2.37	IC	NG	R	U	
87/11	MAPP		MN	SMMP	NEW PRAGUE #4	3.55	IC	NG	R	U	
87/11	MAPP		MN	SMMP	NEW PRAGUE #6	6.6	IC	NG	R	U	
87/11	MAPP		MN	SMMP	NORTH BRANCH #1	.9	IC	NG	R	U	
87/11	MAPP		MN	SMMP	NORTH BRANCH #2	1.28	IC	NG	R	U	
87/11	MAPP		MN	SMMP	OWATONNA DOWNTOWN #5	9.38	ST	NG	R	U	
87/11	MAPP		MN	SMMP	OWATONNA DOWNTOWN #6	19.75	ST	NG	R	U	
87/11	MAPP		MN	SMMP	PRESTON #5	.88	IC	NG	R	U	
87/11	MAPP		MN	SMMP	PRESTON #6	1.96	IC	NG	R	U	
87/11	MAPP		MN	SMMP	PRINCETON #3	2.23	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	PRINCETON #4	.78	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	PRINCETON #5	.78	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	PRINCETON #6	2.42	IC	FO2	R	U	
87/11	MAPP		MN	SMMP	REDWOOD FALLS DOWNTOWN #2	6.64	IC	NG	R	U	
87/11	MAPP		MN	SMMP	REDWOOD FALLS SE #1	2.16	IC	NG	R	U	
87/11	MAPP		MN	SMMP	SPRING VALLEY #2	.87	IC	NG	R	U	
87/11	MAPP		MN	SMMP	SPRING VALLEY #3	1.83	IC	NG	R	U	
87/11	MAPP		MN	SMMP	SPRING VALLEY #4	3.91	IC	NG	R	U	
87/11	MAPP		MN	SMMP	WELLS #1	1.38	IC	NG	R	U	
87/11	MAPP		MN	SMMP	WELLS #2	1.58	IC	NG	R	U	

APPENDIX N
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT RETIREMENTS(UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
87/11	MAPP		MN	SMMP	WELLS #4	2.37	IC	NG	R	U	
87/11	MAPP		MN	SMMP	WELLS #5	2.27	IC	NG	R	U	
87/12	MAAC		PA	PECO	RICHMOND #81	48	GT	FO2	R	U	
87/12	SPP	SE	AR	MSUI	HARVEY COUCH 1	25	ST	NG	R	U	
SUBTOTAL						702					
88/01	MAIN	WUM	MI	MARQ	DIESEL #1	3.6	IC	FO2	R	U	
88/01	MAIN	WUM	MI	MARQ	DIESEL #2	3.6	IC	FO2	R	U	
88/01	MAIN	WUM	MI	MARQ	DIESEL #3	2.0	IC	FO2	R	U	
88/01	MAIN	WUM	MI	MARQ	DIESEL #4	2.0	IC	FO2	R	U	
88/01	MAIN	WUM	MI	MARQ	DIESEL #5	2.7	IC	FO2	R	U	
88/01	SERC	SOU	AL	ALAP	BARRY A	22.5	CT	OIL	R	U	
88/01	SERC	SOU	AL	ALAP	BARRY B	22.5	CT	OIL	R	U	
88/05	NPCC	NB	NB	NBPO	CHATHAM #1	9.4	ST	FO6	R	U	
88/05	SPP	N	KS	EMDE	RIVERTON 3	11	ST	NG	R	U	
88/05	SPP	N	KS	EMDE	RIVERTON 4	9	ST	NG	R	U	
88/11	MAPP		MN	SMMP	ROCHESTER SILVER LAKE #2	14	ST	BIT	R	U	
88/11	NPCC	NE	MA	NOEU	SILVER LAKE #12	14	GT	FO2	R	U	
88/11	NPCC	NE	NH	PSNH	CONWAY DIESEL #1	1	IC	FO2	R	U	
88/11	NPCC	NE	NH	PSNH	CONWAY DIESEL #2	1	IC	FO2	R	U	
88/11	NPCC	NE	NH	PSNH	CONWAY DIESEL #3	1	IC	FO2	R	U	
88/11	NPCC	NE	NH	PSNH	SCHILLER #3	27.3	ST	FO6	R	U	
SUBTOTAL						147					
89/01	MAIN	WUM	WI	WEP	COMMERCE	31	ST	NG	R	U	
89/01	SERC	SOU	GA	GEPC	ATKINSON #1	54	ST	FO2	R	U	
89/02	WSCC	CNV	CA	PG&E	UNID. GAS/OIL RETIREMENT	106	ST	NG	R	U	
89/02	WSCC	CNV	CA	PG&E	UNID. GAS/OIL RETIREMENT	74	ST	NG	R	U	
89/04	ECAR		OH	BMLW	BRYAN #2	3	IC	FO2	R	U	
89/10	WSCC	NWP	AB	EDMP	ROSSDALE #6	22	GT	NG	R	U	
89/10	WSCC	NWP	AB	EDMP	ROSSDALE #7	22	GT	NG	R	U	
89/11	NPCC	NE	CT	NOEU	TORRINGTON TERMINAL	17.2	JE	FO1	R	U	
89/11	NPCC	NE	CT	NOEU	TUNNEL JET #10	17.2	JE	FO1	R	U	
89/11	NPCC	NE	MA	NOEU	WOODLAND ROAD #10	16.6	JE	FO1	R	U	
SUBTOTAL						363					
90/01	ERCOT		TX	TUEC	DALLAS #3	75	ST	NG	R	U	
90/01	ERCOT		TX	TUEC	DALLAS #9	70	ST	NG	R	U	
90/01	ERCOT		TX	TUEC	MOUNTAIN CREEK #6	115	ST	NG	R	U	
90/01	SERC	FL	FL	HSTM	G. W. IVEY #10	2.5	IC	NG	R	U	
90/01	SERC	FL	FL	HSTM	G. W. IVEY #8	3	IC	NG	R	U	
90/01	SERC	FL	FL	HSTM	G. W. IVEY #9	2.5	IC	NG	R	U	
90/01	SERC	SOU	AL	ALAP	GORGAS #5	66	ST	BIT	R	U	
90/01	SERC	SOU	GA	GEPC	ATKINSON #2	62	ST	FO2	R	U	
90/01	WSCC	CNV	CA	PASA	BROADWAY #1	45	ST	NG	R	U	
90/05	MAAC		MD	DPLC	EASTON #3	.5	IC	FO2	R	U	
90/05	MAAC		MD	DPLC	EASTON #4	.6	IC	FO2	R	U	
90/05	MAAC		MD	DPLC	EASTON #5	.8	IC	FO2	R	U	
90/05	MAAC		MD	DPLC	EASTON #6	1.2	IC	FO2	R	U	
90/07	WSCC	AZN	AZ	SRP	ROOSEVELT (1)	36	HY	WAT	R	U	
90/10	ECAR		OH	CG&E	MIAMI FORT GT #1	48	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	MIAMI FORT GT #2	48	GT	FO2	R	U	
90/10	WSCC	NWP	AB	APL	FORT MCMURRAY	15	GT	NG	R	U	
90/10	WSCC	NWP	AB	APL	STURGEON #1	6.5	GT	NG	R	U	
90/10	WSCC	NWP	AB	APL	STURGEON #2	6.5	GT	NG	R	U	
90/10	WSCC	NWP	AB	CMH	MEDICINE HAT #4	3	ST	NG	R	U	

APPENDIX N
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT RETIREMENTS(UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
90/10	WSCC	NWP	AB	CMH	MEDICINE HAT #6	5	ST	NG	R	U	
90/10	WSCC	NWP	AB	EDMP	ROSSDALE #2	14	ST	NG	R	U	
90/10	WSCC	NWP	AB	EDMP	ROSSDALE #3	28	ST	NG	R	U	
90/10	WSCC	NWP	AB	EDMP	ROSSDALE #4	28	ST	NG	R	U	
90/11	SERC	FL	FL	JACO	SOUTHSIDE #1	0	ST	FO6	R	U	
90/12	ECAR		IN	NIPS	MICHIGAN CITY #2	60	ST	COL	R	U	
90/12	MAAC		PA	GPUS	FRONT STREET #1	15	ST	BIT	R	U	
90/12	MAAC		PA	GPUS	FRONT STREET #2	8	ST	BIT	R	U	
90/12	MAAC		PA	GPUS	FRONT STREET #3	15	ST	BIT	R	U	
90/12	MAAC		PA	GPUS	FRONT STREET #4	28	ST	BIT	R	U	
90/12	MAAC		PA	GPUS	FRONT STREET #5	52	ST	BIT	R	U	
90/12	MAAC		PA	GPUS	WILLIAMSBURG #5	32	ST	BIT	R	U	
90/12	MAAC		PA	PECO	CROMBY #2	201	ST	FO6	R	U	
90/12	MAAC		PA	PECO	DELAWARE #7	126	ST	FO6	R	U	
90/12	MAAC		PA	PECO	DELAWARE #8	124	ST	FO6	R	U	
90/12	MAAC		PA	PECO	DELAWARE DIESEL	2.7	IC	FO2	R	U	
90/12	SPP	SE	AR	MSUI	CECIL LYNCH 2	55	ST	NG	R	U	
90/12	SPP	SE	AR	MSUI	LAKE CATHERINE 1	45	ST	NG	R	U	
90/12	SPP	SE	AR	MSUI	LAKE CATHERINE 2	44	ST	NG	R	U	
90/12	SPP	SE	LA	MSUI	A. B. PATERSON 3	55	ST	NG	R	U	
90/12	SPP	WC	OK	PSOK	HOLLIS DIESEL	4	IC	FO2	R	U	
SUBTOTAL						1549					
91/01	ERCOT		TX	TUEC	HANDLEY #1	45	ST	NG	R	U	
91/01	ERCOT		TX	TUEC	HANDLEY #2	80	ST	NG	R	U	
91/01	ERCOT		TX	TUEC	MORGAN CREEK #2	22	ST	NG	R	U	
91/01	ERCOT		TX	TUEC	MORGAN CREEK #3	44	ST	NG	R	U	
91/01	ERCOT		TX	TUEC	PARKDALE #2	115	ST	NG	R	U	
91/01	SERC	FL	FL	JACO	SOUTHSIDE #2	0	ST	FO6	R	U	
91/01	SERC	SOU	GA	GEPC	ATKINSON #3	66	ST	FO2	R	U	
91/01	SERC	SOU	GA	GEPC	ATKINSON #4	64	ST	FO2	R	U	
91/01	WSCC	CNV	CA	PG&E	UNID. GAS/OIL RETIREMENT	115	ST	NG	R	U	
91/01	WSCC	CNV	CA	PG&E	UNID. GAS/OIL RETIREMENT	116	ST	NG	R	U	
91/04	WSCC	RMP	CO	PSC	FT. ST. VRAIN #1	230	NH	TH	R	U	
91/05	MAPP		MN	OTP	HOOT LAKE #1	7.7	ST	LIG	R	U	
91/05	NPCC	NE	CT	NOEU	FRANKLIN DRIVE #10	17.2	JE	FO1	R	U	
91/05	NPCC	NE	MA	NOEU	DOREEN #10	16.6	JE	FO1	R	U	
91/05	SERC	SOU	AL	ALAP	CHICKASAW #3	41	ST	FO2	R	U	
91/07	MAPP		SA	SPC	ESTEVAN #2	14	ST	LIG	R	U	
91/07	MAPP		SA	SPC	ESTEVAN #3	19	ST	LIG	R	U	
91/07	MAPP		SA	SPC	ESTEVAN #4	28	ST	LIG	R	U	
91/10	WSCC	NWP	BC	BCHA	BOSTON BAR DIESEL	1	IC	FO2	R	U	
91/10	WSCC	NWP	BC	BCHA	LYTTON DIESEL	2	IC	FO2	R	U	
91/11	ECAR		IN	NIPS	MICHIGAN CITY #3	60	ST	COL	R	U	
91/12	SPP	SE	AR	MSUI	H. MOSES 1	63	ST	NG	R	U	
91/12	SPP	SE	AR	MSUI	H. MOSES 2	63	ST	NG	R	U	
91/12	SPP	SE	LA	CAJN	OPELOUSAS 1	17	ST	GAS	R	U	
91/12	SPP	SE	LA	CAJN	OPELOUSAS 2	17	ST	GAS	R	U	
91/12	SPP	SE	LA	MSUI	NINEMILE 1	70	ST	NG	R	U	
91/12	SPP	SE	MS	MSUI	NATCHEZ 1	73	ST	NG	R	U	
91/12	SPP	SE	MS	MSUI	REX BROWN 3	69	ST	NG	R	U	
SUBTOTAL						1476					
92/01	ERCOT		TX	TUEC	NORTH MAIN #4	80	ST	NG	R	U	
92/01	ERCOT		TX	TUEC	RIVERCREST #1	110	ST	NG	R	U	
92/01	WSCC	CNV	CA	PASA	BROADWAY #2	45	ST	NG	R	U	

APPENDIX N
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT RETIREMENTS(UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
92/01	WSCC	CNV	CA	PG&E	UNID. GAS/OIL RETIREMENT	116	ST	NG	R	U	
92/01	WSCC	CNV	CA	PG&E	UNID. GAS/OIL RETIREMENT	116	ST	NG	R	U	
92/01	WSCC	CNV	CA	PG&E	UNID. GAS/OIL RETIREMENT	117	ST	NG	R	U	
92/01	WSCC	NWP	ID	IPC	SWAN FALLS #10	9	HY	WAT	R	U	
92/05	MAAC		MD	BCCO	WESTPORT #3	58	ST	FO6	R	U	
92/05	MAAC		MD	BCCO	WESTPORT #4	68	ST	FO6	R	U	
92/05	MAPP		NE	NPPD	SCOTTSBLUFF #2	5.5	ST	NG	R	U	
92/05	SPP	N	KS	EMDE	RIVERTON 6	31	ST	NG	R	U	
92/10	ECAR		OH	CG&E	MIAMI FORT GT #3	14	GT	FO2	R	U	
92/10	ECAR		OH	CG&E	MIAMI FORT GT #4	14	GT	FO2	R	U	
92/10	ECAR		OH	CG&E	MIAMI FORT GT #5	14	GT	FO2	R	U	
92/10	ECAR		OH	CG&E	MIAMI FORT GT #6	15	GT	FO2	R	U	
92/11	MAPP		MN	SMMP	FAIRMONT #5	12.4	ST	BIT	R	U	
92/11	NPCC	NE	CT	NOEU	DEVON #3	68	ST	FO6	R	U	
92/11	NPCC	NE	CT	NOEU	DEVON #4	50	ST	FO6	R	U	
92/11	NPCC	NE	MA	NOEU	WEST SPRINGFIELD #1	51	ST	FO6	R	U	
92/11	NPCC	NE	MA	NOEU	WEST SPRINGFIELD #2	51	ST	FO6	R	U	
92/11	SPP	WC	OK	OKGE	ENID 1	12	GT	NG	R	U	
92/11	SPP	WC	OK	OKGE	ENID 2	12	GT	NG	R	U	
92/11	SPP	WC	OK	OKGE	ENID 3	12	GT	NG	R	U	
92/11	SPP	WC	OK	OKGE	ENID 4	12	GT	NG	R	U	
92/11	SPP	WC	OK	OKGE	WOODWARD GT	11	GT	NG	R	U	
SUBTOTAL						1104					
93/01	ECAR		OH	CG&E	MIAMI FORT #5	80	ST	COL	R	U	
93/01	ERCOT		TX	TUEC	COLLIN #1	153	ST	NG	R	U	
93/01	ERCOT		TX	TUEC	LAKE CREEK #1	87	ST	NG	R	U	
93/01	ERCOT		TX	TUEC	PARKDALE #1	87	ST	NG	R	U	
93/01	SERC	FL	FL	GAMW	J. R. KELLY #1	14	GT	FO2	R	U	
93/01	SERC	FL	FL	GAMW	J. R. KELLY #2	14	GT	FO2	R	U	
93/01	SERC	FL	FL	GAMW	J. R. KELLY #6	14	ST	FO6	R	U	
93/05	MAAC		PA	PECO	SCHUYLKILL #1	166	ST	FO6	R	U	
93/05	MAAC		PA	PECO	SCHUYLKILL DIESEL	2.7	IC	FO2	R	U	
93/05	NPCC	NB	NB	NBPO	GRAND LAKE #5	4.8	ST	BIT	R	U	
93/05	NPCC	NB	NB	NBPO	GRAND LAKE #6	4.8	ST	BIT	R	U	
93/05	NPCC	NB	NB	NBPO	GRAND LAKE #7	14.3	ST	BIT	R	U	
93/05	NPCC	NE	CT	NOEU	DEVON #5	48	ST	FO6	R	U	
93/05	NPCC	NE	CT	NOEU	DEVON #6	68	ST	FO6	R	U	
93/05	NPCC	NE	CT	NOEU	MIDDLETOWN #1	69.5	ST	FO6	R	U	
93/05	SERC	FL	FL	TALL	SAM O. PURDOM #1R	0	ST	FO6	R	U	
93/05	SERC	FL	FL	TALL	SAM O. PURDOM #2R	0	ST	FO6	R	U	
93/05	SERC	FL	FL	TALL	SAM O. PURDOM #3R	0	ST	FO6	R	U	
93/05	SERC	FL	FL	TALL	SAM O. PURDOM #4R	0	ST	FO6	R	U	
93/06	WSCC	NWP	WA	BPA	HANFORD #1	420	ZZ	PL	R	U	
93/06	WSCC	NWP	WA	BPA	HANFORD #2	420	ZZ	PL	R	U	
93/10	ECAR		OH	CG&E	DICKS CREEK GT #3	14	GT	NG	R	U	
93/10	ECAR		OH	CG&E	DICKS CREEK GT #4	15	GT	FO2	R	U	
93/10	ECAR		OH	CG&E	DICKS CREEK GT #5	15	GT	FO2	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE #1	13.5	ST	FO6	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE #3	0	ST	FO6	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE #4	2	ST	FO6	R	U	
93/12	SPP	SE	AR	MSUI	LAKE CATHERINE 3	90	ST	NG	R	U	
93/12	SPP	SE	LA	MSUI	NINEMILE 2	90	ST	NG	R	U	
93/12	SPP	SE	MS	MSUI	DELTA 1	95	ST	NG	R	U	
93/12	SPP	SE	MS	MSUI	DELTA 2	95	ST	NG	R	U	
93/12	SPP	SE	MS	MSUI	REX BROWN 1	36	ST	NG	R	U	

APPENDIX N

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT RETIREMENTS(UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
93/12	SPP	WC	TX	SOEP	LONE STAR 2	13	GT	FO2	R	U	
93/12	SPP	WC	TX	SOEP	LONE STAR 3	13	GT	FO2	R	U	
93/12	SPP	WC	TX	SOEP	LONE STAR 4	14	GT	FO2	R	U	
SUBTOTAL						2173					
94/01	ERCOT		TX	TUEC	MORGAN CREEK #4	70	ST	NG	R	U	
94/01	ERCOT		TX	TUEC	MOUNTAIN CREEK #2	33	ST	NG	R	U	
94/01	ERCOT		TX	TUEC	MOUNTAIN CREEK #3	70	ST	NG	R	U	
94/01	ERCOT		TX	TUEC	PARKDALE #3	125	ST	NG	R	U	
94/01	ERCOT		TX	TUEC	TRINIDAD #5	70	ST	NG	R	U	
94/01	SERC	FL	FL	GAMW	J. R. KELLY #3	14	GT	FO2	R	U	
94/05	MAAC		MD	DPLC	EASTON #7	2	IC	FO2	R	U	
94/05	MAAC		PA	PECO	CHESTER #7	13	GT	FO2	R	U	
94/05	MAAC		PA	PECO	CHESTER #8	13	GT	FO2	R	U	
94/05	MAAC		PA	PECO	CHESTER #9	13	GT	FO2	R	U	
94/07	WSCC	RMP	CO	CEC	PUEBLO #1	8	ST	NG	R	U	
94/11	SPP	WC	OK	OKGE	MUSTANG 1	58	ST	NG	R	U	
94/11	SPP	WC	OK	OKGE	MUSTANG 2	57	ST	NG	R	U	
94/12	NPCC	NE	CT	NOEU	COS COB #10	19	JE	FO1	R	U	
94/12	NPCC	NE	CT	NOEU	COS COB #11	19	JE	FO1	R	U	
94/12	NPCC	NE	CT	NOEU	COS COB #12	19	JE	FO1	R	U	
94/12	NPCC	NE	CT	NOEU	MONTVILLE #5	81	ST	FO6	R	U	
94/12	SPP	SE	AR	MSUI	CECIL LYNCH 3	130	ST	NG	R	U	
94/12	SPP	SE	AR	MSUI	H. COUCH 2	122	ST	NG	R	U	
94/12	SPP	SE	LA	MSUI	A. B. PATERSON #4	80	ST	NG	R	U	
94/UN	SERC	SOU	AL	ALEC	McWILLIAMS #1	9.5	ST	COL	R	U	
94/UN	SERC	SOU	AL	ALEC	McWILLIAMS #2	9.5	ST	COL	R	U	
SUBTOTAL						1035					
95/01	ERCOT		TX	TUEC	EAGLE MOUNTAIN #1	115	ST	NG	R	U	
95/01	ERCOT		TX	TUEC	EAGLE MOUNTAIN #2	175	ST	NG	R	U	
95/01	ERCOT		TX	TUEC	PERMIAN BASIN #5	115	ST	NG	R	U	
95/01	SERC	FL	FL	HSTM	G. W. IVEY #11	3.5	IC	NG	R	U	
95/01	SERC	FL	FL	HSTM	G. W. IVEY #12	3.5	IC	NG	R	U	
95/05	MAPP		NE	NPPD	DIESEL GROUP	3.95	IC	FO2	R	U	
95/07	WSCC	RMP	CO	CEC	PUEBLO #2	8	ST	NG	R	U	
95/10	ECAR		OH	CG&E	DICKS CREEK GT #1	92	JE	NG	R	U	
95/10	MAIN	CE	IL	CECO	WAUKEGAN #6	100	ST	SUB	R	U	
95/12	NPCC	NE	CT	NOEU	SOUTH MEADOW #11	39	JE	FO1	R	U	
95/12	NPCC	NE	CT	NOEU	SOUTH MEADOW #12	39	JE	FO1	R	U	
95/12	NPCC	NE	CT	NOEU	SOUTH MEADOW #13	39	JE	FO1	R	U	
95/12	NPCC	NE	CT	NOEU	SOUTH MEADOW #14	39	JE	FO1	R	U	
95/12	SPP	SE	LA	MSUI	NINEMILE 3	125	ST	NG	R	U	
SUBTOTAL						897					
96/01	ERCOT		TX	TUEC	MOUNTAIN CREEK #7	125	ST	NG	R	U	
96/01	ERCOT		TX	TUEC	STRYKER #1	175	ST	NG	R	U	
96/01	SERC	FL	FL	GAMW	J. R. KELLY #7	22	ST	FO6	R	U	
96/01	SERC	SOU	AL	SOEG	GASTON A	16	CT	OIL	R	U	J
96/01	SERC	SOU	FL	GUPC	CRIST #1	22	ST	NG	R	U	
96/01	SERC	SOU	FL	GUPC	CRIST #2	21	ST	NG	R	U	
96/01	SERC	SOU	FL	GUPC	CRIST #3	38	ST	NG	R	U	
96/01	SERC	SOU	FL	GUPC	SCHOLZ #1	46	ST	BIT	R	U	
96/01	SERC	SOU	FL	GUPC	SCHOLZ #2	47	ST	BIT	R	U	
96/01	SERC	SOU	FL	GUPC	SMITH A	31	CT	FO2	R	U	
96/04	NPCC	NY	NY	ORRU	LOVETT #1	19	ST	FO6	R	U	

APPENDIX N

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

GENERATING UNIT RETIREMENTS(UTILITY AND NON-UTILITY OWNED)
(January 1, 1987 - December 31, 1996)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
96/04	NPCC	NY	NY	ORRU	LOVETT #2	20	ST	FO6	R	U	
96/06	ERCOT		TX	CP&L	LA PALMA #7	43	GT	NG	R	U	
96/06	SERC	SOU	FL	GUPC	CRIST #4	88	ST	BIT	R	U	
96/06	SERC	SOU	FL	GUPC	CRIST #5	89	ST	BIT	R	U	
96/06	SERC	SOU	GA	GEPC	ARKWRIGHT #1	43	ST	BIT	R	U	
96/10	MAIN	CE	IN	CECO	STATE LINE #3	187	ST	SUB	R	U	
96/11	SPP	WC	OK	OKGE	ARBUCKLE	74	ST	NG	R	U	
96/11	SPP	WC	OK	OKGE	MUSTANG 5A & B	64	GT	NG	R	U	
96/11	SPP	WC	OK	OKGE	SEMINOLE 1 GT	19	GT	NG	R	U	
SUBTOTAL						1189					
TOTAL						10634					

CODES FOR GENERATING UNITS

UNIT TYPE

ST	Steam Turbine-Non Nuclear
NB	Steam-BWR Nuclear
NP	Steam-PWR Nuclear
NH	Steam-HTGR Nuclear
CD	CANDU
IC	Internal Combustion
GT	Combustion Turbine (Gas Turbine)
HT	Conventional Hydro
PS	Pumped Storage Hydro
CW	Combined Cycle-Steam Portion-Waste Heat Only
CA	Combined Cycle-Steam Portion-Auxiliary Fired
CT	Combined Cycle-Combustion Turbine Portion
CC	Combined Cycle
CG	Cogeneration
JE	Jet Engine
FC	Fuel Cell
SO	Solar
WM	Wind Power
GE	Geothermal
ZZ	None of the above
UN	Unknown at this time

CONSTRUCTION STATUS

P	Planned for installation, but not utility authorized
L	Regulatory approval pending, but not under construction
T	Regulatory approval received, but not under construction
U	Under construction, less than approximately 50% of plant completed
V	Under construction, greater than approximately 50% of plant completed
R	Planned for retirement

OWNERSHIP (or U/NU)

U	Utility
CG	Non-utility Cogenerator
ZZ	Non-utility Small Power Producer

FUEL TYPE

WH	Waste Heat
COL	Coal-General
BIT	Bituminous Coal
SUB	Sub-Bituminous Coal
ANT	Anthracite Coal
LIG	Lignite Coal
PC	Petroleum Coke
LNG	Liquified Natural Gas
MTH	Methanol
GAS	Gas-General
NG	Natural Gas
RG	Refinery Gas
BFG	Blast Furnace Gas
COG	Coke Oven Gas
UNK	Unknown at this time
GST	Geothermal Steam
MUL	Multi-Fueled
REF	Refuse-Solid Waste
OIL	Oil-General
FO1	No. 1 Fuel Oil
FO2	No. 2 Fuel Oil
FO4	No. 4 Fuel Oil
FO5	No. 5 Fuel Oil
FO6	No. 6 Fuel Oil
CRU	Crude Oil
TOP	Top Crude Oil
JF	Jet Fuel
KER	Kerosene
LPG	Liquid Propane Gas
RRO	Re-Refined Motor Oil
SNG	Synthetic Natural Gas
UR	Uranium
PL	Plutonium
WAT	Water
TH	Thorium
SUN	Sun
WND	Wind
G/C	Gas and/or Coal
O/C	Oil and/or Coal
W/G	Wood and/or Gas
W/O	Wood and/or Oil
WOD	Wood
WD	Wood and Wood Waste
PEA	Peat
ZZ	None of the above

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL
REGIONS AND SUBREGIONS

REGIONS	COUNTRY	SUBREGIONS
ECAR East Central Area Reliability Coordination Agreement	U.S.	None
ERCOT Electric Reliability Council of Texas	U.S.	None
MAAC Mid-Atlantic Area Council	U.S.	None
MAIN Mid-America Interconnected Network	U.S.	**CE-CMNWLTH EDISON**-Commonwealth Edison Company Subregion
	U.S.	**EM-EAST MISSOURI**-East Missouri Subregion
	U.S.	**SCI-S. CENT. ILLINOIS**-South Central Illinois Group
	U.S.	**WUM-WIS-UPPER MICH.**-Wisconsin-Upper Michigan Subregion
MAPP Mid-Continent Area Power Pool	U.S.	None
	CANADA	None
NPCC Northeast Power Coordinating Council	U.S.	**NY-NEW YORK**-New York Power Pool
	U.S.	**NE-NEW ENGLAND**-New England Power Pool
	CANADA	**NB-NEW BRUNSWICK**-New Brunswick Electric Power Commission
	CANADA	**NS-NOVA SCOTIA**-Nova Scotia Power Corp.
	CANADA	**ONT-ONTARIO**-Ontario Hydro
	CANADA	**QUE-QUEBEC**-Hydro-Quebec
SERC Southeastern Electric Reliability Council	U.S.	**FL-FLORIDA**-Florida Subregion
	U.S.	**SOU-SOUTHERN**-Southern Subregion
	U.S.	**TVA**-Tennessee Valley Authority Subregion
	U.S.	**VAC-VACAR**-Virginia-Carolinas Subregion
SPP Southwest Power Pool	U.S.	**SE-SOUTHEAST**-Western Mississippi, Southeastern Texas, Eastern Arkansas, Southeastern Missouri, and Louisiana
	U.S.	**WC-WEST CENTRAL**-Western Arkansas, the Texas Panhandle, Northeast Texas, and Oklahoma
	U.S.	**N-NORTHERN**-Western Missouri and Kansas
WSCC Western Systems Coordinating Council	U.S.	**NWP-NW POOL**-Northwest Power Pool Area
	U.S.	**RMP-ROCKY MT. AREA**-Rocky Mountain Power Area
	U.S.	**AZN-ARIZ.-N.MEX.**-Arizona-New Mexico Power Area
	U.S.	**CNV-CALIF-SO.NEV.**-California-Southern Nevada Power Area
	CANADA	None
	MEXICO	None

North American
Electric
Reliability
Council

101 COLLEGE ROAD EAST
PRINCETON, NEW JERSEY 08540-6601

609-452-8060

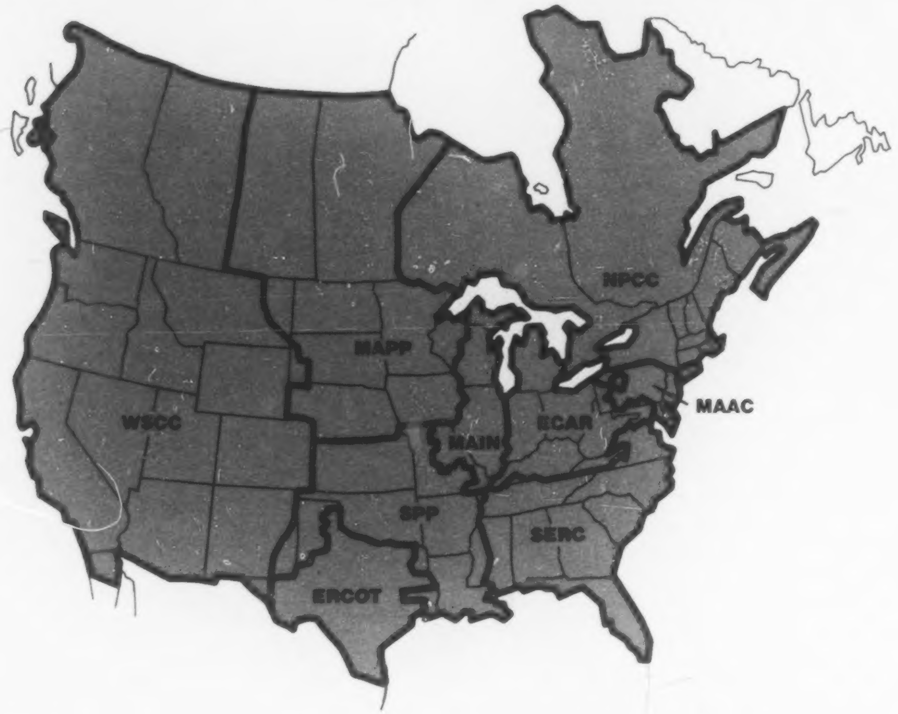
A8630-2
K126L88 A

1988 ELECTRICITY SUPPLY & DEMAND

FOR 1988-1997

North American
Electric
Reliability
Council

North American Electric Reliability Council



ECAR
East Central Area Reliability Coordination Agreement

ERCOT
Electric Reliability Council of Texas

MAAC
Mid-Atlantic Area Council

MAIN
Mid-America Interconnected Network

MAPP
Mid-Continent Area Power Pool

NPCC
Northeast Power Coordinating Council

SERC
Southeastern Electric Reliability Council

SPP
Southwest Power Pool

WSCC
Western Systems Coordinating Council

AFFILIATE

ASCC
Alaska Systems Coordinating Council

The North American Electric Reliability Council (NERC) was formed in 1968 by the electric utilities to promote the RELIABILITY of their generation and transmission systems. NERC consists of nine Regional Reliability Councils and one affiliate encompassing virtually all of the electric systems in the United States, Canada, and the northern portion of Baja California, Mexico.

RELIABILITY, in a bulk electric system, is the degree to which the performance of the elements of that system results in electricity being delivered to customers within accepted standards and in the amount desired. The degree of reliability may be measured by the frequency, duration, and magnitude of adverse effects on the electric supply (or service to customers.)

Bulk electric system reliability can be addressed by considering two basic and functional aspects of the bulk electric system — adequacy and security.

ADEQUACY is the ability of the bulk electric system to supply the aggregate electrical demand and energy requirements of the customers at all times, taking into account scheduled and unscheduled outages of system components.

SECURITY is the ability of the bulk electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system components.

Copyright © 1988 by North American Electric Reliability Council. All rights reserved.

ANNUAL DATA SUMMARY

1988
ELECTRICITY SUPPLY & DEMAND

FOR 1988-1997

FOR THE NINE REGIONAL RELIABILITY COUNCILS
OF THE
NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

October 1988

CONTENTS

PAGE

I. INTRODUCTION 5

II. OVERVIEW 6

III. DEMAND

PEAK DEMANDS 8
- 1987 Actual Peak Demands
- 1988-1997 Projections
  - Summer
  - Winter
- Load Management
- Summer/Winter Peak Demand Ratios
- Forecast Uncertainty

ANNUAL NET ENERGY FOR LOAD 16
- 1987 Actual Net Energy For Load
- 1988-1997 Projections
- Annual Load Factors
- Forecast Uncertainty

IV. SUPPLY

PLANNED CAPACITY RESOURCES 20
- Summer
- Winter
- Capacity Margins

INSTALLED GENERATING CAPACITY 26
- Summer
- Winter
- Summary by Fuel

ELECTRICAL ENERGY PRODUCTION 34
- Total
- Internal Generation
- Imports Less Exports
- Summary by Fuel

FOSSIL FUEL REQUIREMENTS 41
- Coal
- Oil
- Natural Gas

PLANNED GENERATING UNIT CHANGES 48
- Additions
  - Total
  - Nuclear
  - Coal-Fired
  - Hydro (Conventional)
  - Pumped Storage
  - Oil-Fired
  - Gas-Fired
  - Other (Utility)
  - Non-Utility Generators (NUGs)
- Retirements

CONTENTS (Continued)

PAGE

V. TRANSMISSION 61

EXISTING TRANSMISSION SYSTEM -- DECEMBER 31, 1987
- 230 kV & Above
- AC & DC

PLANNED TRANSMISSION SYSTEM ADDITIONS (1988-1997)
- 1988-1992
- 1993-1997

PLANNED TRANSMISSION SYSTEM -- DECEMBER 31, 1997
- 230 kV & Above
- AC & DC

VI. APPENDIXES 68

A. Installed Generating Capacity

B. Electrical Energy Production

C. Fossil Fuel Requirements for Coal, Oil, and Natural Gas

D. Generating Unit Additions

E. Nuclear Generating Unit Additions

F. Coal-Fired Generating Unit Additions

G. Hydro (Conventional) Generating Unit Additions

H. Pumped Storage Generating Unit Additions

I. Oil-Fired Generating Unit Additions

J. Gas-Fired Generating Unit Additions

K. Other (Utility) Generating Unit Additions

L. Non-Utility Generator (NUG) Additions

M. Jointly-Owned Generating Unit Additions

N. Generating Unit Retirements

VII. CODES AND ABBREVIATIONS

Generating Unit Additions and Retirements .... Next to Last Page

NERC Regions and Subregions .... Last Page

INTRODUCTION

The North American Electric Reliability Council (NERC) annually collects and publishes ten-year projections of electricity supply and demand of the nine Regional Reliability Councils. This **Electricity Supply & Demand** report provides this data for the 1988-1997 period.

The projections were developed by the nine Regional Reliability Councils and reflect conditions as of January 1, 1988. Data on peak demand, net energy for load, capacity resources, capacity margins, and planned additions and retirements of generating units have been extracted from the April 1, 1988 Coordinated Bulk Power Supply Program (IE-411) reports submitted to the U.S. Department of Energy (DOE) by each Regional Reliability Council. Data on generating capacity, electrical energy production, fossil fuel requirements, planned conversions of units from oil to coal, and existing and planned additions of transmission lines were reported by the Regional Reliability Councils directly to NERC.

Areas served by the nine Regional Reliability Councils are shown on the inside front cover of this report. Five of the Regions -- MAIN, NPCC, SERC, SPP, and WSCC -- are broken down into subregions. The regional and subregional abbreviations used throughout this report are defined on the last page of the report.

Data for that part of the Comision Federal de Electricidad system in the northern portion of Baja California, Mexico, which is interconnected with the U.S. electric utility systems, is included under the category WSCC-Mexico or NERC-Mexico.

This report also includes forecast bandwidths around the most probable peak demand and annual net energy for load projections for NERC-U.S. and NERC-Canada. The demand and energy projections for the United States and Canada are sums of the projections provided by the Regional Reliability Councils. The forecast bandwidths around these projections are intended to provide a better understanding of NERC's aggregated projections and to illustrate the uncertainty inherent in the forecasting process.

Future uncertainties, many beyond individual electric utility control, could change the underlying assumptions of these projections, the projections themselves, and the trends indicated.

Questions about this report may be directed to:

Virginia C. Sulzberger
Director-Engineering

Colin L. Wright
Engineering Analyst

William F. Gallagher
Cooperative Education Student
Electrical Engineering
Drexel University

North American Electric Reliability Council
101 College Road East
Princeton, New Jersey 08540-6601
(609) 452-8060

OVERVIEW
1988-1997 PROJECTIONS

DEMAND

PEAK DEMANDS (Thousands of MW)	Summer	1988	1997	Annual Growth Rate (%)
	NERC-U.S.	500	594	1.9
	NERC-Canada	51	65	2.6
	NERC-Mexico	0.7	1.3	7.2
	NERC-Total	**552**	**660**	**2.0**
	Winter	1988/89	1997/98	
	NERC-U.S.	457	548	2.0
	NERC-Canada	71	88	2.5
	NERC-Mexico	0.5	1.0	7.2
	NERC-Total	**528**	**637**	**2.1**
PEAK DEMAND FORECAST UNCERTAINTY (Thousands of MW)	Summer	1988	1997	Annual Growth Rate (%)
	HIGH	514	647	2.6
	NERC-U.S.	**500**	**594**	**1.9**
	LOW	485	529	1.0
	Winter	1988/89	1997/98	
	HIGH	71	97	3.5
	NERC-Canada	**71**	**88**	**2.5**
	LOW	70	76	1.1
PEAK DEMAND RATIOS (%)	Summer/Winter	1988	1997	Peak Season
	NERC-U.S.	110	108	Summer
	NERC-Canada	73	73	Winter
	NERC-Mexico	134	134	Summer
	NERC-Total	**105**	**104**	**Summer**
NET ENERGY FOR LOAD (NEL) (Millions of MWh)	Annual	1988	1997	Annual Growth Rate (%)
	NERC-U.S.	2,690	3,210	2.0
	NERC-Canada	391	502	2.8
	NERC-Mexico	3.4	6.3	7.1
	NERC-Total	**3,084**	**3,718**	**2.1**
NEL FORECAST UNCERTAINTY (Millions of MWh)	Annual	1988	1997	Annual Growth Rate (%)
	HIGH	2,724	3,488	2.8
	NERC-U.S.	**2,690**	**3,210**	**2.0**
	LOW	2,644	2,872	0.9
	HIGH	393	550	3.8
	NERC-Canada	**391**	**502**	**2.8**
	LOW	389	440	1.4
SYSTEM LOAD FACTORS (%)	Annual	1988	1997	Trend
	NERC-U.S.	61.4	61.7	Increasing
	NERC-Canada	63.2	64.8	Increasing
	NERC-Mexico	55.7	55.4	Decreasing
	NERC Total	**63.8**	**64.3**	**Increasing**

OVERVIEW
1988-1997 PROJECTIONS

SUPPLY

	Summer	1988	1997	Annual Growth Rate (%)
PLANNED CAPACITY RESOURCES (Thousands of MW)	NERC-U.S.	651	728	1.3
	NERC-Canada	82	99	2.1
	NERC-Mexico	0.8	1.5	7.0
	NERC-Total	**734**	**828**	**1.4**
	Winter	1988/89	1997/98	
	NERC-U.S.	668	739	1.1
	NERC-Canada	83	101	2.2
	NERC-Mexico	0.8	1.5	7.0
	NERC-Total	**752**	**841**	**1.3**

	Summer	1988	1997
ESTIMATED CAPACITY MARGINS (%)	NERC-U.S.	24	20
	NERC-Mexico	13	12
	NERC-Total	**26**	**22**
	Winter	1988/89	1997/98
	NERC-Canada	17	15

		1988-1997					
		Utility					
	Summer	Nuclear	Coal	Hydro	Other	Non-Utility	Total
PLANNED GENERATING UNIT ADDITIONS (Thousands of MW)	NERC-U.S.	18.2	15.4	1.7	18.3	19.8	**73.4**
	NERC-Canada	3.5	4.1	8.0	0.5	0.3	**16.4**
	NERC-Mexico	0.0	0.0	0.0	0.7	0.0	**0.7**
	NERC-Total	**21.7**	**19.5**	**9.7**	**19.5**	**20.1**	**90.5**

TRANSMISSION

		1988-1997			
	Voltage Level	NERC U.S.	NERC Canada	NERC Mexico	NERC Total
PLANNED TRANSMISSION ADDITIONS (Circuit Miles in Thousands)	230 kV (AC)	4.9	2.5	0.1	**7.5**
	345 kV (AC)	4.4	0.9	0.0	**5.3**
	500 kV (AC)	2.0	1.4	0.0	**3.4**
	765 kV (AC)	0.0	0.9	0.0	**0.9**
	±250 kV (DC) and above	0.7	0.8	0.0	**1.5**
	Total	**12.0**	**6.5**	**0.1**	**18.6**

PEAK DEMANDS

The demand data includes 1987 actual and 1988-1997 projected electric peak demands for the nine Regional Reliability Councils and their subregions. All peak demands are 60-minute integrated demands.

Within a Region, the peak demands of individual electric utilities may occur in different months within a given season. Therefore, the peak demands for the NERC Regions as well as for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total represent aggregations of non-coincident or monthly coincident utility peak demands.

The summer period includes June through September, while the winter period begins in December and runs through March of the following year.

1987 Actual Peak Demands

Table 1 compares the 1987 actual electric peak demands with those of 1986 and with the values previously forecast for 1987 for the NERC areas of the United States, Canada, Mexico, and NERC as a whole. The summer peak demand for NERC-U.S. in 1987 was 4% greater than that in 1986 and was 2.4% more than last year's forecast for 1987. In NERC-Canada, a winter peaking area, the 1987/88 winter peak demand was 8.9% above the 1986/87 peak and 2.7% above forecast. In summer peaking NERC-Mexico, the 1987 peak demand was 4.9% higher than the 1986 peak but 4.8% less than the forecast for 1987.

1988-1997 Projections

Details of the 1988-1997 peak demand projections for the nine Regional Reliability Councils and their subregions are shown in Tables 2 (summer) and 3 (winter). These tables also include 1987 actual peak demands and projected average annual peak demand growth rates. To be meaningful, the average annual growth rates are calculated over the nine-year period from the first (1988) to the tenth (1997) year of the projections.

The NERC-Total aggregated summer peak demands in Table 2 show an increase of 107,596 MW over the 1988-1997 period -- corresponding to an average annual growth rate of 2.0%. The high summer annual growth rates for NERC-Canada (2.6%) and NERC-Mexico (7.2%) are offset by the NERC-U.S. annual growth rate of 1.9%.

Table 3 shows that the NERC-Total aggregated winter peak demands are projected to increase by 109,471 MW over the forecast period -- corresponding to an average annual growth rate of 2.1%. NERC-Canada, a winter peaking area, has a summer peak demand growth rate slightly higher than its winter peak growth rate. NERC-U.S., a summer peaking area, has a winter peak demand growth rate higher than its summer peak growth rate. The summer and winter growth rates for NERC-Mexico are equal. Over the next ten years, NERC-U.S., NERC-Mexico, and NERC-Total are projected to remain summer peaking areas and NERC-Canada winter peaking.

Load Management

In this report, the term load management includes those customer loads under the direct control of the electric utility system operator or interruptible by the customer at the utility's request in accordance with contractual arrangements. These "managed" loads are included in (not subtracted from) the peak demand aggregations of Tables 2 and 3 and are summarized in Tables 2A (summer) and 3A (winter).

Summer/Winter Peak Demand Ratios

Figure 1 illustrates the summer-to-winter peak demand ratios for the NERC Regions as well as for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total. The ratio, in percent, is calculated by dividing the summer peak demand for a given year (i.e., 1988) by the following winter (i.e., 1988/89) peak demand and multiplying the resulting ratio by 100. The seasonal peak demand ratios range from the highly winter peaking NPCC-Canada and MAPP-Canada areas to the highly summer peaking NERC-Mexico and SPP areas.

Figure 1 also shows that seven of the nine NERC Regions in the United States -- MAAC, MAPP-U.S., ERCOT, MAIN, SPP, ECAR, and SERC -- have faster growing winter peak demands than summer peak demands, although all seven Regions remain summer peaking throughout the 1988-1997 forecast period. In contrast, NPCC-U.S. and WSCC-U.S. are tending toward increased summer peaking Regions.

In Canada, all three NERC Regions are projected to remain winter peaking over the next ten years. However, NPCC-Canada has a faster growing summer peak than winter peak. MAPP-Canada has a faster growing winter peak than summer peak, while in WSCC-Canada both summer and winter peak demands are growing at about the same rate.

Forecast Uncertainty

NERC's peak demand projections in Tables 2 and 3 are aggregates of the most probable forecasts of the reporting utilities. These regional projections represent the midpoints of probabilistic distributions of forecast values. That is, the likelihood of the projections in Tables 2 and 3 being exceeded is equal to the likelihood of these projections not being reached.

In order to provide a better understanding of NERC's aggregated forecasts of peak demand and to illustrate the uncertainty inherent in the forecasting process, high and low forecast bounds around the NERC-U.S. and NERC-Canada projections have been defined as shown in Figures 2 and 3, respectively. These figures also show recent historical average annual growth rates. The forecast bounds, or sensitivity bandwidth, are defined such that there is about a 10% chance that peak demand will exceed the upper bound and about a 10% chance that demand will be less than the lower bound. That is, there is approximately an 80% chance that future peak demands for NERC-U.S. and NERC-Canada will fall within their respective bounds.

The U.S. summer peak demand bandwidth of Figure 2 was developed from the U.S. energy bandwidth (described in the following section) by applying the projected annual load factors from the NERC aggregated base forecasts along with the historical U.S. relationship between actual peak demand and annual energy. The Canada winter peak demand bandwidth of Figure 3 was derived from the Canadian energy bandwidth (described in the following section) in a similar manner.

The NERC-U.S. peak demand bandwidth growth rates range from 1% to 2.6% per year over the forecast period. The comparable winter peak demand bandwidth growth rates for NERC-Canada range from 1.1% to 3.5% per year.

It would be incorrect to apply the ranges of the peak demand forecast bandwidths shown in Figures 2 and 3 to the projections of any NERC Region, subregion, or individual utility. The high and low bounds apply only to the NERC-U.S. and NERC-Canada aggregated projections for peak demand.

TABLE 1
1987 PEAK DEMANDS
(Thousands of Megawatts)

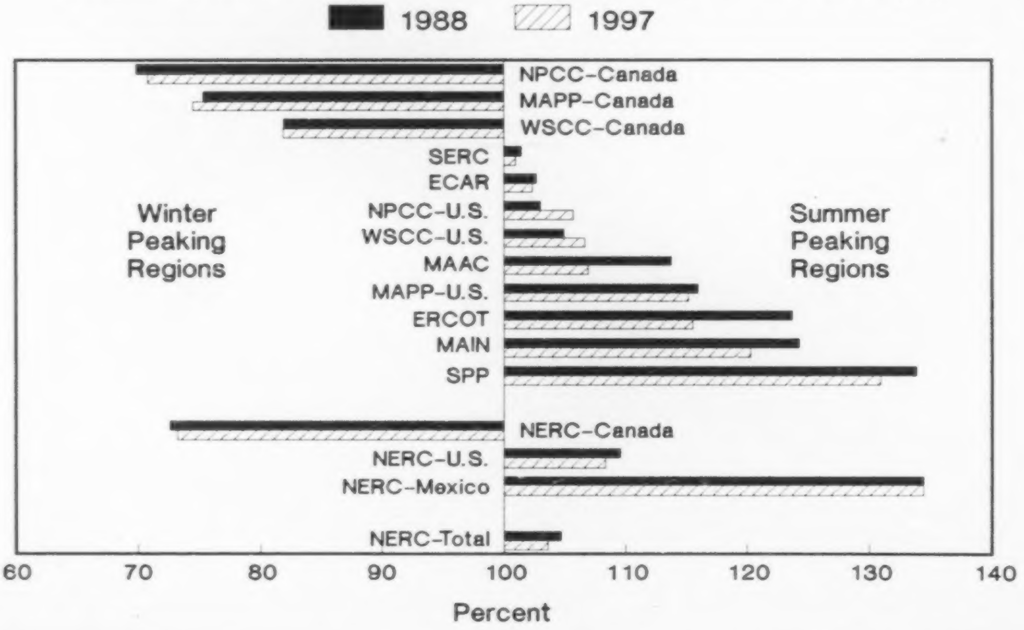
Summer Peak Demand	1986 Actual	1987 Actual	Actual Change (%)	1987 Forecast	Actual vs Forecast (%)
NERC-U.S.	477	**496**	4.0	484	2.4
NERC-Canada	47	**50**	7.0	49	1.8
NERC-Mexico[a]	0.62	**0.65**	4.9	0.68	-4.8
NERC-Total	**525**	**547**	**4.3**	**534**	**2.4**

Winter Peak Demand	1986/87 Actual	1987/88 Actual	Actual Change (%)	1987/88 Forecast	Actual vs Forecast (%)
NERC-U.S.	423	**448**	6.0	444	1.0
NERC-Canada	64	**70**	8.9	68	2.7
NERC-Mexico[a]	0.39	**0.46**	15.8	0.44	3.2
NERC-Total	487	519	6.4	512	1.2

[a] Northern portion of Baja California, Mexico only.

Figure 1

SUMMER/WINTER PEAK DEMAND RATIOS (%)



North American
Electric
Reliability
Council

TABLE 2
ACTUAL AND PROJECTED PEAK DEMANDS - SUMMER - MW
(1988-1997 FORECAST)

	ACTUAL	PROJECTED										1988-1997 AVERAGE ANNUAL GROWTH
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	(%)
NERC-U.S.												
ECAR	72561	71770	73315	74318	75549	76714	77940	79124	80483	81794	83031	1.6
ERCOT	39339	40510	41404	42305	43343	44549	45796	46809	47722	49008	50343	2.4
MAAC[a,b]	40526	39581	40067	40655	41215	41739	42308	42826	43347	43918	44491	1.3
MAIN	37458	37308	37848	38353	38967	39576	40168	40796	41408	42018	42637	1.5
CMNWLTH EDISON	15683	15850	16150	16450	16800	17150	17500	17850	18200	18550	18900	2.0
EAST MISSOURI	6979	6826	6910	6974	7069	7163	7257	7352	7426	7501	7586	1.2
S CENT ILLINOIS	6845	6744	6765	6833	6897	6961	7026	7120	7217	7310	7408	1.0
WIS-UPPER MICH	7951	7888	8023	8096	8201	8302	8385	8474	8565	8657	8743	1.2
MAPP	23162	22840	23231	23596	23864	24193	24525	24921	25327	25758	26192	1.5
NPCC	42651	43038	43828	44798	45808	46768	47728	48489	49291	50117	50866	1.9
NEW YORK	24570	24310	24700	25170	25580	25940	26300	26640	27000	27340	27680	1.5
NEPOOL[b]	18081	18728	19128	19628	20228	20828	21428	21849	22291	22777	23186	2.4
SERC	109798[c]	110961	113735	117238	120000	122661	125602	128609	131356	134335	137349	2.4
FLORIDA	25710	25506	26332	27264	28133	29040	29894	30801	31564	32307	33131	2.9
SOUTHERN	27057	27677	28380	29123	29812	30482	31142	31826	32514	33246	33998	2.3
TVA	19894	20349	20689	21055	21574	21651	22129	22639	23149	23700	24251	2.0
VACAR	37430	37429	38334	39796	40481	41488	42437	43343	44129	45082	45969	2.3
SPP	47723	48330	49120	49844	50803	51804	52731	53775	54985	56181	57380	1.9
SOUTHEAST	20302	20426	20623	20696	20912	21253	21492	21818	22189	22621	23061	1.4
WEST CENTRAL	15781	16091	16409	16761	17210	17565	17959	18384	18939	19405	19856	2.4
NORTHERN	11640	11813	12088	12387	12681	12986	13280	13573	13857	14155	14463	2.3
WSCC[c]	82967	85932	87568	89287	91129	92706	94473	95996	97787	99640	101394	1.9
NW POOL	25677	26245	26588	26804	27233	27448	27812	28172	28569	28891	29279	1.2
ROCKY MT-AREA	6021	6216	6393	6562	6720	6863	7022	7175	7352	7578	7719	2.4
ARIZ-N.MEX	10570	11314	11683	12013	12366	12674	12993	13199	13531	13867	14209	2.6
CALIF-SO.NEV	42010	42802	43518	44553	45503	46385	47220	48126	49017	49888	50765	1.9
TOTAL(U.S.)	496185	500270	510116	520394	530678	540710	551271	561345	571706	582769	593683	1.9
NERC-CANADA												
MAPP	4048	4172	4309	4446	4589	4704	4820	4916	5022	5112	5217	2.5
NPCC	35935	36136	37369	38668	39614	40497	41505	42495	43608	44342	45350	2.6
NEW BRUNSWICK	1520	1551	1598	1647	1691	1738	1781	1825	1869	1912	1959	2.6
NOVA SCOTIA	1108	1113	1155	1294	1333	1370	1393	1434	1472	1509	1548	3.7
ONTARIO	18502	17916	18451	18931	19334	19709	20111	20536	20927	21231	21663	2.1
QUEBEC	14805	15556	16165	16796	17256	17680	18220	18700	19340	19690	20180	2.9
WSCC	10208	10917	11225	11488	11753	12067	12373	12882	13324	13798	14235	3.0
TOTAL(CANADA)	50191	51225	52903	54602	55956	57268	58698	60293	61954	63252	64802	2.6
NERC-MEXICO												
WSCC	649	700	748	797	888	953	1015	1081	1151	1226	1306	7.2
TOTAL(MEXICO)	649	700	748	797	888	953	1015	1081	1151	1226	1306	7.2
NERC-TOTAL	547025	552195	563767	575793	587522	598931	610984	622719	634811	647247	659791	2.0

---

[a] Peak demands are coincident.

[b] Contractually interruptible loads and loads under the direct control of electric utility system operators are (subtracted) not included.

[c] The sum of the subregional peak hour demands do not necessarily equal the coincident regional total because of sub-regional peak load diversity.

North American
Electric
Reliability
Council

TABLE 2A
PROJECTED TOTAL LOAD MANAGEMENT[a] - SUMMER - MW
(1988-1997 FORECAST)

	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.										
ECAR	631	676	681	681	681	686	681	686	681	686
ERCOT	1220	1108	1175	1259	1329	1403	1476	1251	1143	1207
MAAC	929	1137	1328	1504	1698	1874	2048	2223	2352	2470
MAIN	829	804	847	849	854	860	864	869	875	880
CMNWLTH EDISON	200	200	200	200	200	200	200	200	200	200
EAST MISSOURI	170	170	170	165	165	165	165	165	165	165
S CENT ILLINOIS	259	227	242	247	251	255	259	263	268	272
WIS-UPPER MICH	200	207	235	237	238	240	240	241	242	243
MAPP	720	771	799	825	851	876	889	920	943	968
NPCC	239	228	228	303	394	469	545	620	696	771
NEW YORK	158	156	156	231	322	397	473	548	624	699
NEPOOL	81	72	72	72	72	72	72	72	72	72
SERC	1740	1858	2002	2143	2343	2545	2763	2959	3130	3328
FLORIDA	911	999	1131	1252	1432	1619	1814	1992	2145	2321
SOUTHERN	278	278	278	278	278	268	268	268	268	268
TVA	258	260	243	237	232	233	235	237	241	246
VACAR	293	321	350	376	401	425	446	462	476	493
SPP	626	629	655	729	751	739	735	865	899	928
SOUTHEAST	264	267	270	276	281	286	288	290	290	290
WEST CENTRAL	171	154	154	255	255	255	231	336	346	352
NORTHERN	191	208	231	198	215	198	216	239	263	286
WSCC	1821	1883	1929	1907	1882	1883	1737	1740	1741	1751
NW POOL	1090	1065	1059	1020	992	992	992	994	984	1002
ROCKY MT-AREA	144	162	163	163	164	165	166	166	167	168
ARIZ-N.MEX	502	571	622	638	641	641	494	495	495	496
CALIF-SO.NEV	85	85	85	85	85	85	85	85	85	85
TOTAL(U.S.)	8755	9094	9644	10200	10783	11335	11738	12133	12460	12989
NERC-CANADA										
MAPP	140	140	140	140	140	140	140	140	140	140
NPCC	1562	1638	1791	1818	2036	2386	2686	2986	2986	2986
NEW BRUNSWICK	30	30	30	30	30	30	30	30	30	30
NOVA SCOTIA	100	100	100	100	100	100	100	100	100	100
ONTARIO	732	758	811	838	856	856	856	856	856	856
QUEBEC	700	750	850	850	1050	1400	1700	2000	2000	2000
WSCC	96	91	92	73	79	79	79	82	82	82
TOTAL(CANADA)	1798	1869	2023	2031	2255	2605	2905	3208	3208	3208
NERC-MEXICO										
WSCC	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	10553	10963	11667	12231	13038	13940	14643	15341	15668	16197

---

[a] Load management includes only those customer loads under the direct control of the electric utility system operator or interruptible by the customer at the utility's request in accordance with contractual arrangements.

North American
Electric
Reliability
Council

TABLE 3
ACTUAL AND PROJECTED PEAK DEMANDS - WINTER - MW
(1988-1997 FORECAST)

	ACTUAL	PROJECTED										1988/89-1997/98 AVERAGE ANNUAL GROWTH (%)
	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	
NERC-U.S.												
ECAR	68118	69972	71140	72163	73434	74645	75886	77252	78589	79853	81123	1.7
ERCOT	31399	32754	33803	34950	36200	37474	38564	39550	40894	42276	43597	3.2
MAAC[a,b]	35775	34785	35486	36185	36925	37673	38452	39233	40084	40840	41607	2.0
MAIN	30618	30054	30600	31197	31794	32394	33014	33634	34221	34837	35476	1.9
CMNWLTH EDISON	12452	11900	12140	12380	12630	12880	13140	13400	13670	13940	14220	2.0
EAST MISSOURI	5317	5333	5466	5630	5790	5948	6102	6256	6380	6524	6658	2.5
S CENT ILLINOIS	5582	5637	5728	5813	5893	5986	6090	6199	6310	6420	6534	1.7
WIS-UPPER MICH	7267	7184	7266	7374	7481	7580	7682	7779	7861	7953	8064	1.3
MAPP	19335	19703	20153	20488	20834	21104	21394	21717	22036	22380	22756	1.6
NPCC	41902	41788	42738	43488	44198	44818	45458	46138	46845	47562	48139	1.6
NEW YORK	22593	22460	23010	23360	23770	24090	24430	24780	25120	25450	25770	1.5
NEPOOL[b]	19309	19328	19728	20128	20428	20728	21028	21358	21725	22112	22369	1.6
SERC	105476	109442	112779	115651	118333	121323	124383	127239	130043	133106	135993	2.4
FLORIDA	26804	27821	28880	29830	30773	31745	32786	33685	34548	35491	36360	3.0
SOUTHERN	22125	23537	24175	24760	25344	25874	26487	27074	27686	28338	29009	2.3
TVA	20299	20780	21180	21616	21610	21991	22398	22812	23300	23788	24284	1.7
VACAR	36248	37304	38544	39445	40606	41713	42712	43668	44509	45489	46340	2.4
SPP	34472	36127	36734	37354	38288	39052	39925	40823	41848	42865	43862	2.2
SOUTHEAST	15270	15602	15738	15834	16124	16344	16631	16951	17268	17632	18007	1.6
WEST CENTRAL	10989	11909	12156	12460	12865	13187	13536	13896	14392	14799	15183	2.7
NORTHERN	8213	8616	8840	9060	9299	9521	9758	9976	10188	10434	10672	2.4
WSCC[c]	81182	81889	83358	84764	85987	87496	89453	91109	92663	94388	95140	1.7
NW POOL	32142	34596	34892	35296	35643	36141	36618	37115	37557	38049	37322	.8
ROCKY MT-AREA	5765	6090	6287	6442	6608	6768	6935	7100	7292	7525	7682	2.6
ARIZ-N.MEX	8446	8532	8784	9041	9269	9512	9991	10251	10571	10834	10980	2.8
CALIF-SO.NEV	34829	32954	33595	34436	34983	35558	36260	36966	37787	38435	39156	1.9
TOTAL(U.S.)	448277	456514	466791	476240	485993	495979	506529	516695	527223	538107	547693	2.0
NERC-CANADA												
MAPP	5371	5538	5737	5929	6113	6280	6434	6579	6740	6863	7005	2.6
NPCC	52139	51737	52517	54007	55626	57131	58583	60142	61411	62745	64053	2.4
NEW BRUNSWICK	2232	2321	2410	2501	2587	2675	2757	2839	2920	2998	3079	3.2
NOVA SCOTIA	1607	1532	1639	1749	1812	1870	1927	1986	2045	2105	2166	3.9
ONTARIO	22345	22449	23011	23657	24112	24636	25179	25667	26016	26502	26998	2.1
QUEBEC	25955	25435	25457	26100	27115	27950	28720	29650	30430	31140	31810	2.5
WSCC	12354	13327	13738	14062	14404	14802	15192	15754	16288	16861	17385	3.0
TOTAL(CANADA)	69864	70602	71992	73998	76143	78213	80209	82475	84439	86469	88443	2.5
NERC-MEXICO												
WSCC	455	521	557	593	661	709	755	804	856	912	972	7.2
TOTAL(MEXICO)	455	521	557	593	661	709	755	804	856	912	972	7.2
NERC-TOTAL	518596	527637	539340	550831	562797	574901	587493	599974	612518	625488	637108	2.1

---

[a] Peak demands are coincident.

[b] Contractually interruptible loads and loads under the direct control of electric utility system operators are (subtracted) not included.

[c] The sum of the subregional peak hour demands do not necessarily equal the coincident regional total because of sub-regional peak load diversity.

North American
Electric
Reliability
Council

TABLE 3A
PROJECTED TOTAL LOAD MANAGEMENT[a] - WINTER - MW
(1988-1997 FORECAST)

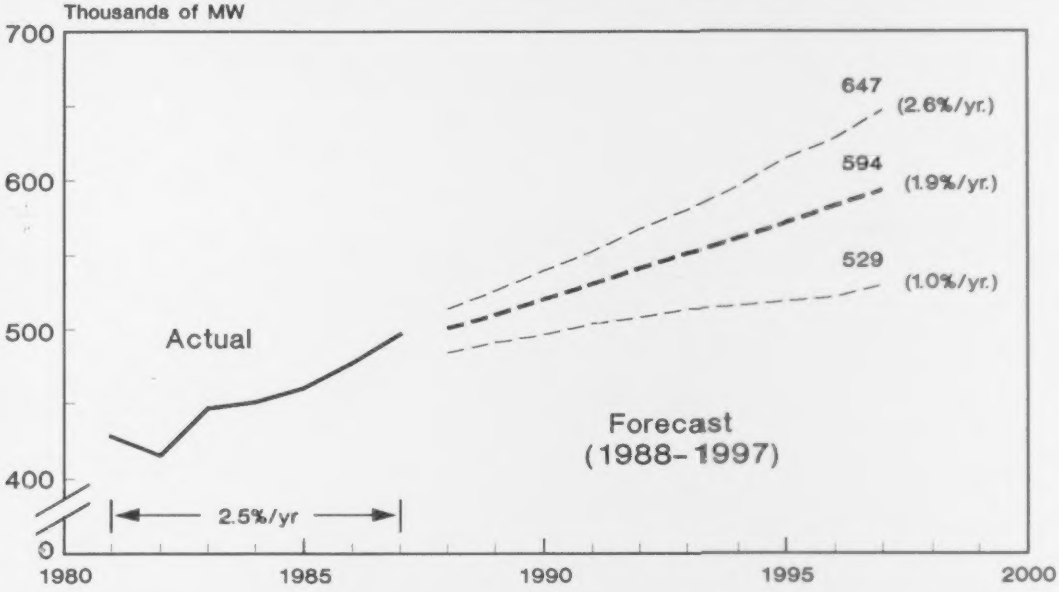
	PROJECTED									
	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
NERC-U.S.										
ECAR	686	686	686	691	691	691	691	696	696	756
ERCOT	1258	1143	1205	1283	1346	1410	1470	1232	1109	1160
MAAC	635	683	742	794	829	864	899	933	951	978
MAIN	739	750	773	774	779	783	789	793	799	805
CMNWLTH EDISON	200	200	200	200	200	200	200	200	200	200
EAST MISSOURI	170	170	170	165	165	165	165	165	165	165
S CENT ILLINOIS	152	156	160	163	167	170	174	177	182	186
WIS-UPPER MICH	217	224	243	246	247	248	250	251	252	254
MAPP	747	777	820	859	895	923	946	972	992	1014
NPCC	182	182	182	257	348	423	499	574	650	725
NEW YORK	110	110	110	185	276	351	427	502	578	653
NEPOOL	72	72	72	72	72	72	72	72	72	72
SERC	2016	2311	2556	2817	3040	3324	3628	3862	4130	4350
FLORIDA	980	1164	1315	1489	1657	1898	2143	2324	2537	2702
SOUTHERN	274	274	274	274	274	264	264	264	264	264
TVA	258	261	260	260	256	256	256	263	273	281
VACAR	504	612	707	794	853	906	965	1011	1056	1103
SPP	405	386	334	431	399	400	377	454	430	406
SOUTHEAST	141	141	141	141	141	141	141	141	141	141
WEST CENTRAL	138	118	118	218	218	218	194	269	244	219
NORTHERN	126	127	75	72	40	41	42	44	45	46
WSCC[b]	1680	1710	1687	1664	1656	1876	1878	1878	1877	1907
NW POOL	1100	1096	1068	1041	1032	1032	1033	1033	1030	1013
ROCKY MT-AREA	124	143	143	143	145	146	146	147	148	149
ARIZ-N.MEX	371	386	391	394	394	613	614	613	614	660
CALIF-SO.NEV	85	85	85	85	85	85	85	85	85	85
TOTAL(U.S.)	8348	8628	8985	9570	9983	10694	11177	11394	11634	12101
NERC-CANADA										
MAPP	140	140	140	140	140	140	140	140	140	140
NPCC	1604	1727	1785	1997	2347	2647	2947	2947	2947	2947
NEW BRUNSWICK	30	30	30	30	30	30	30	30	30	30
NOVA SCOTIA	100	100	100	100	100	100	100	100	100	100
ONTARIO	724	747	805	817	817	817	817	817	817	817
QUEBEC	750	850	850	1050	1400	1700	2000	2000	2000	2000
WSCC	91	92	73	79	79	79	82	82	82	82
TOTAL(CANADA)	1835	1959	1998	2216	2566	2866	3169	3169	3169	3169
NERC-MEXICO										
WSCC	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	10183	10587	10983	11786	12549	13560	14346	14563	14803	15270

---

[a] Load management includes only those customer loads under the direct control of the electric utility system operator or interruptible by the customer at the utility's request in accordance with contractual arrangements.

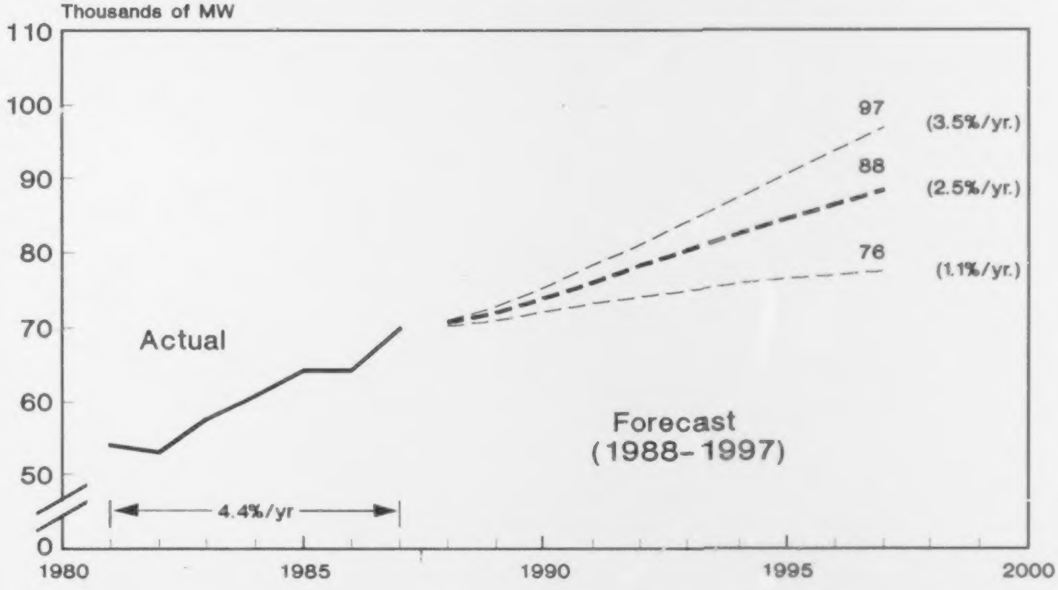
NERC-U.S. Figure 2

SUMMER PEAK DEMAND BANDWIDTH



NERC-Canada Figure 3

WINTER PEAK DEMAND BANDWIDTH



ANNUAL NET ENERGY FOR LOAD

The annual net energy for load (NEL) represents the annual electrical energy needed to serve the utilities' customers. NEL includes transmission losses and represents the electrical energy generated by the utilities' own generating sources plus electrical energy purchases from other utilities and non-utility generators, less electrical energy sales to other utilities. NEL does not include energy pumping requirements for pumped storage generating facilities.

1987 Actual Net Energy for Load

Table 4 compares 1986 and 1987 NEL for the NERC areas of the United States, Canada, Mexico, and NERC as a whole. The 1987 NEL in all of these areas exceeded their respective 1986 NEL values. In addition, 1987 NELs in all areas except NERC-Mexico exceeded their respective 1987 forecasts.

1988-1997 Projections

Details of the regional and subregional 1988-1997 NEL projections, their associated average annual growth rates, and 1987's NEL actuals are shown in Table 5. The NERC-Total NEL is projected to increase by 634 million MWh over the forecast period -- corresponding to an average annual growth rate of 2.1%. As in the case for peak demands, the higher annual NEL growth rates for NERC-Canada (2.8%) and NERC-Mexico (7.1%) are offset by the NERC-U.S. annual growth rate of 2%.

Annual Load Factors

The projected annual load factors for the NERC Regions as well as for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total are shown in Figure 4. The load factors are calculated by dividing the annual NEL of Table 5 by the product of peak demand (the greater of the summer or winter peak demands of Table 2 or 3) and 8,760 hours per year. This load factor ratio is then multiplied by 100 to express the load factor in percent. The 1988 regional load factors range from over 65% in WSCC-U.S., WSCC-Canada, and ECAR to slightly less than 55% in SPP.

Forecast Uncertainty

To illustrate the uncertainty in the forecasting process, high and low bounds have been defined around the NERC-U.S. and NERC-Canada annual NEL projections as shown in Figures 5 and 6, respectively. These figures also show recent historical average annual growth rates. The forecast bounds are defined such that there is approximately an 80% chance that future annual NEL for the United States and Canada will fall within the bounds of their respective bandwidths.

In defining the NERC-U.S. NEL bandwidth, regression analysis was used to establish a relationship between annual electrical energy and key energy-related variables. The established relationship between the variables and NEL were used with high and low estimates of the variables to develop corresponding high and low bounds for the NEL projections shown in Figure 5. The upper bound implies an annual average growth rate of 2.8%, while the lower bound indicates a 0.9% per year rate. There is a 10% chance that future annual energy for load will exceed the upper bound, and a 10% chance that annual energy needs will be less than the lower bound. The Canada and U.S. NEL bandwidth calculation methodologies are similar except for the energy-related variables. It would be incorrect to apply the ranges of the energy forecast bandwidths in Figures 5 and 6 to the annual NEL forecasts of any NERC Region, subregion, or individual utility. The high and low bounds apply only to NERC-U.S. and NERC-Canada.

TABLE 4
1987 NET ENERGY FOR LOAD
(Millions of MWh)

Location	1986 Actual	1987 Actual	Actual Change %	1987 Forecast	Actual vs Forecast %
NERC-U.S.	2532	**2644**	4.4	2589	2.1
NERC-Canada	357	**375**	5.0	374	0.3
NERC-Mexico[a]	2.8	**3.2**	11.9	3.2	-1.8
NERC-Total	**2892**	**3021**	**4.5**	**2966**	**1.9**

[a] Northern portion of Baja California, Mexico only.

Figure 4

ANNUAL LOAD FACTORS (%)

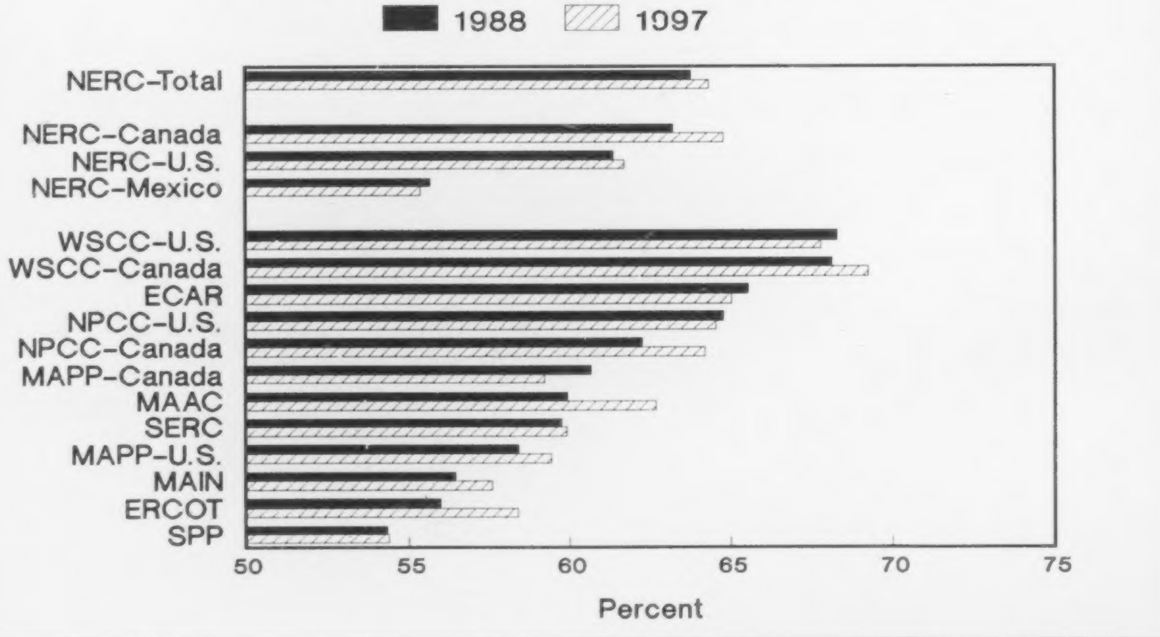


TABLE 5
ACTUAL AND PROJECTED ANNUAL NET ENERGY FOR LOAD - Millions kWh
(1988-1997 FORECAST)

North American Electric Reliability Council	ACTUAL	PROJECTED										1988-1997 AVERAGE ANNUAL GROWTH (%)
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	
NERC-U.S.												
ECAR	408739	412200	421600	426500	432900	439200	445600	452000	459100	466300	472900	1.5
ERCOT	195400	198771	205598	211510	218240	225128	232453	237730	242211	249787	257489	2.9
MAAC	207007	207834	211505	215284	219499	223811	228166	232531	236392	240431	244277	1.8
MAIN	181972	184512	187735	190790	194244	197688	201089	204648	208075	211563	215181	1.7
CMNWLTH EDISON	73650	73750	75225	76750	78300	79850	81450	83100	84750	86450	88200	2.0
EAST MISSOURI	31816	32148	32696	33250	33964	34676	35314	35941	36501	37054	37654	1.8
S CENT ILLINOIS	34189	34065	34171	34684	35177	35644	36138	36751	37381	38007	38670	1.4
WIS-UPPER MICH	42317	44549	45643	46106	46803	47518	48187	48856	49443	50052	50657	1.4
MAPP	113063	116925	118693	120605	122056	124389	126578	128892	131344	133768	136328	1.7
NPCC	239063	244200	249049	254280	259065	263949	268911	273485	278359	283230	287557	1.8
NEW YORK	134443	135619	137840	140732	143151	145627	148143	150227	152376	154445	156415	1.6
NEPOOL	104620	108581	111209	113548	115914	118322	120768	123258	125983	128785	131142	2.1
SERC	573735	580983	597267	613337	628736	643133	658656	674757	689791	706171	720827	2.4
FLORIDA	125234	130195	135387	140810	145925	151283	156147	160875	165390	169913	174463	3.3
SOUTHERN	140007	142156	145652	149456	152806	156036	158948	162544	166109	169799	173630	2.2
TVA	111030	111754	115019	118161	119787	119334[a]	121469	123739	126127	128880	131522	1.8
VACAR	197464	196878	201209	204910	210218	216480	222092	227599	232165	237579	241212	2.3
SPP	228260	230049	234423	237390	241161	246049	250605	255956	261604	267513	273379	1.9
SOUTHEAST	103276	104824	106550	106556	107341	109112	110291	112057	113990	116155	118407	1.4
WEST CENTRAL	74809	74424	75896	77535	79158	80956	82922	85199	87655	90119	92420	2.4
NORTHERN	50175	50801	51977	53299	54662	55981	57392	58700	59959	61239	62552	2.3
WSCC	496293	514086	523592	532547	542776	553106	562012	572342	582281	592872	602019	1.8
NW POOL	186150	195271	197016	198635	201204	203296	205227	207864	210550	213444	215399	1.1
ROCKY MT-AREA	35358	36587	37477	38485	39372	40273	41320	42327	43241	44474	45436	2.4
ARIZ-N.MEX	55100	56375	59095	61722	64027	66157	68183	70188	72128	74047	75875	3.4
CALIF-SO.NEV	219685	225853	230004	233705	238173	243380	247282	251963	256362	260907	265309	1.8
TOTAL(U.S.)	2643532	2689560	2749462	2802243	2858677	2916453	2974070	3032341	3089157	3151635	3209957	2.0
NERC-CANADA												
MAPP	27532	29443	29796	30820	31867	32803	33452	34145	34885	35643	36348	2.4
NPCC	270881	282192	291511	301646	310417	318495	327058	335795	345635	352182	360201	2.7
NEW BRUNSWICK	11546	11985	12422	12896	13422	13841	14249	14655	15057	15457	15849	3.2
NOVA SCOTIA	7978	8220	8597	9409	9817	10099	10298	10540	10810	11081	11354	3.7
ONTARIO	126455	129719	133237	136989	140486	144257	147912	151900	155468	158044	161298	2.5
QUEBEC[b]	124902	132268	137255	142352	146692	150298	154599	158700	164300	167600	171700	2.9
WSCC	76225	79516	81954	84059	86225	88698	91107	95002	98501	102188	105442	3.2
TOTAL(CANADA)	374638	391151	403261	416525	428509	439996	451617	464942	479021	490013	501991	2.8
NERC-MEXICO												
WSCC	3172	3415	3649	3898	4167	4460	4781	5127	5499	5901	6335	7.1
TOTAL(MEXICO)	3172	3415	3649	3898	4167	4460	4781	5127	5499	5901	6335	7.1
NERC-TOTAL	3021342	3084126	3156372	3222666	3291353	3360909	3430468	3502410	3573677	3647549	3718283	2.1

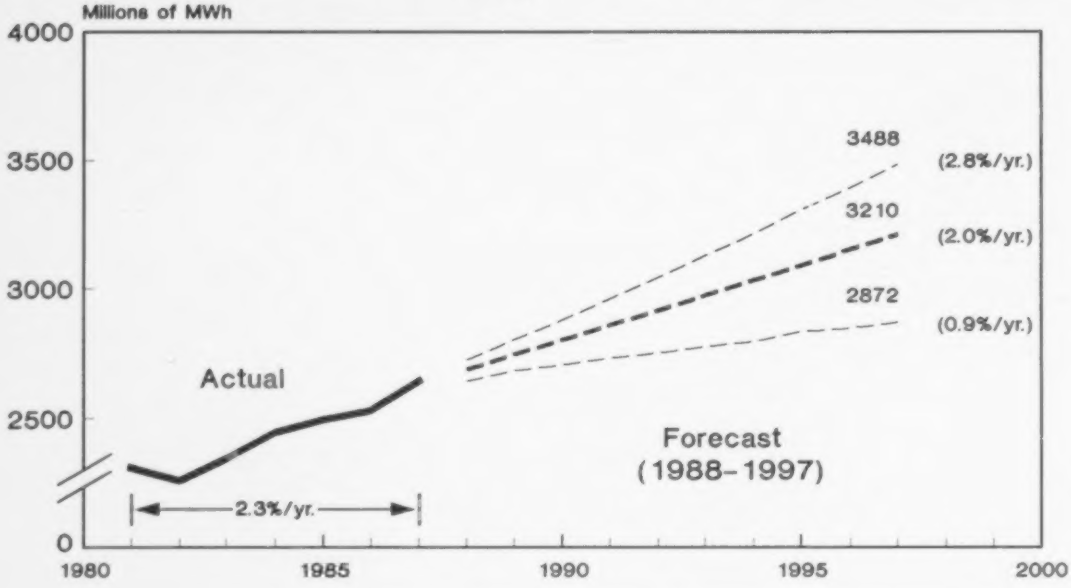
---

[a] Contract with the government (gaseous diffusion plant) is scheduled to expire.

[b] Excludes a special program of secondary industrial sales to Quebec customers ending in late 1989.

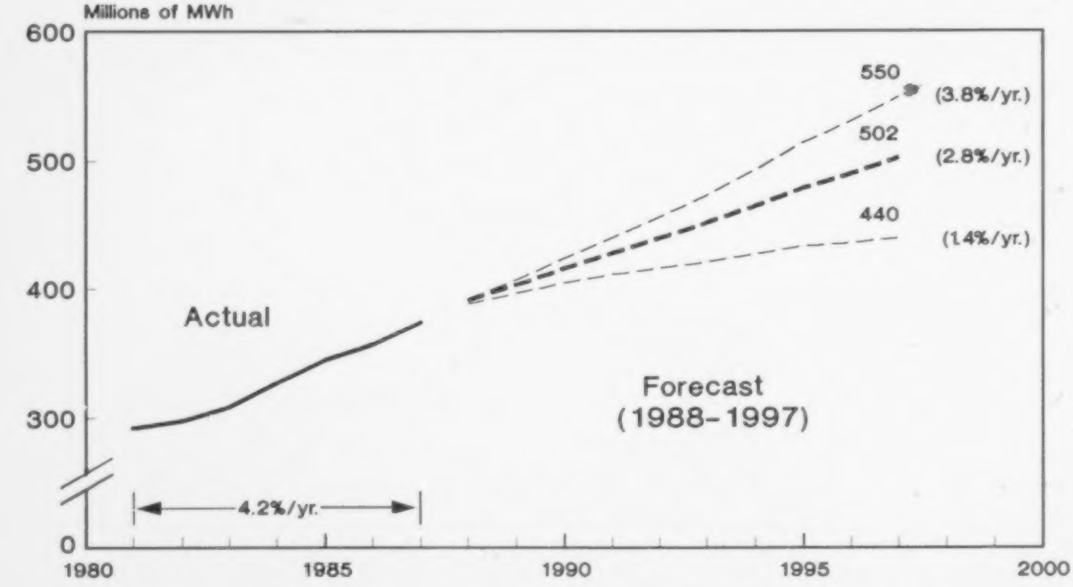
NERC-U.S. Figure 5

ANNUAL NET ENERGY FOR LOAD BANDWIDTH



NERC-Canada Figure 6

ANNUAL NET ENERGY FOR LOAD BANDWIDTH



PLANNED CAPACITY RESOURCES

The planned capacity resources include the total dependable generating capacity which is existing, presently under construction, or in various stages of planning, plus any scheduled capacity purchases from other utilities or non-utility generators, less any capacity sales. The planned capacity resources for the nine Regional Reliability Councils and their subregions are shown in Tables 6 (summer) and 7 (winter).

To serve projected demands, NERC systems are planning to increase their net capacity resources by about 94,500 MW (summer) and 89,300 (winter) over the 1988-1997 period -- corresponding to NERC-Total average annual growth rates of 1.4% (summer) and 1.3% (winter). The comparable average annual growth rates for the Regions and subregions of NERC are shown in the last column of Tables 6 and 7. The total capacity resources in winter are generally greater than those of the previous summer season.

The realization of these plans for capacity resources is contingent upon the completion, as scheduled, of utility and non-utility generating units which are in various stages of planning, design, licensing, or construction. A breakdown by fuel of the installed generating capacity included in these planned resources is shown in Table 12 (summer), Table 15 (winter), and Appendix A. In Appendix A, the distribution of each major capacity fuel type among the Regions and subregions is defined for 1987 actual and the 1988-1997 forecast.

Estimated Capacity Margins

To adequately supply projected demand requirements, planned capacity resources must also include a sufficient capacity margin above the demand to provide for scheduled maintenance and forced outages of generating units, for equipment deratings due to various causes, for differences between actual demands and those forecast, and for other system operating requirements.

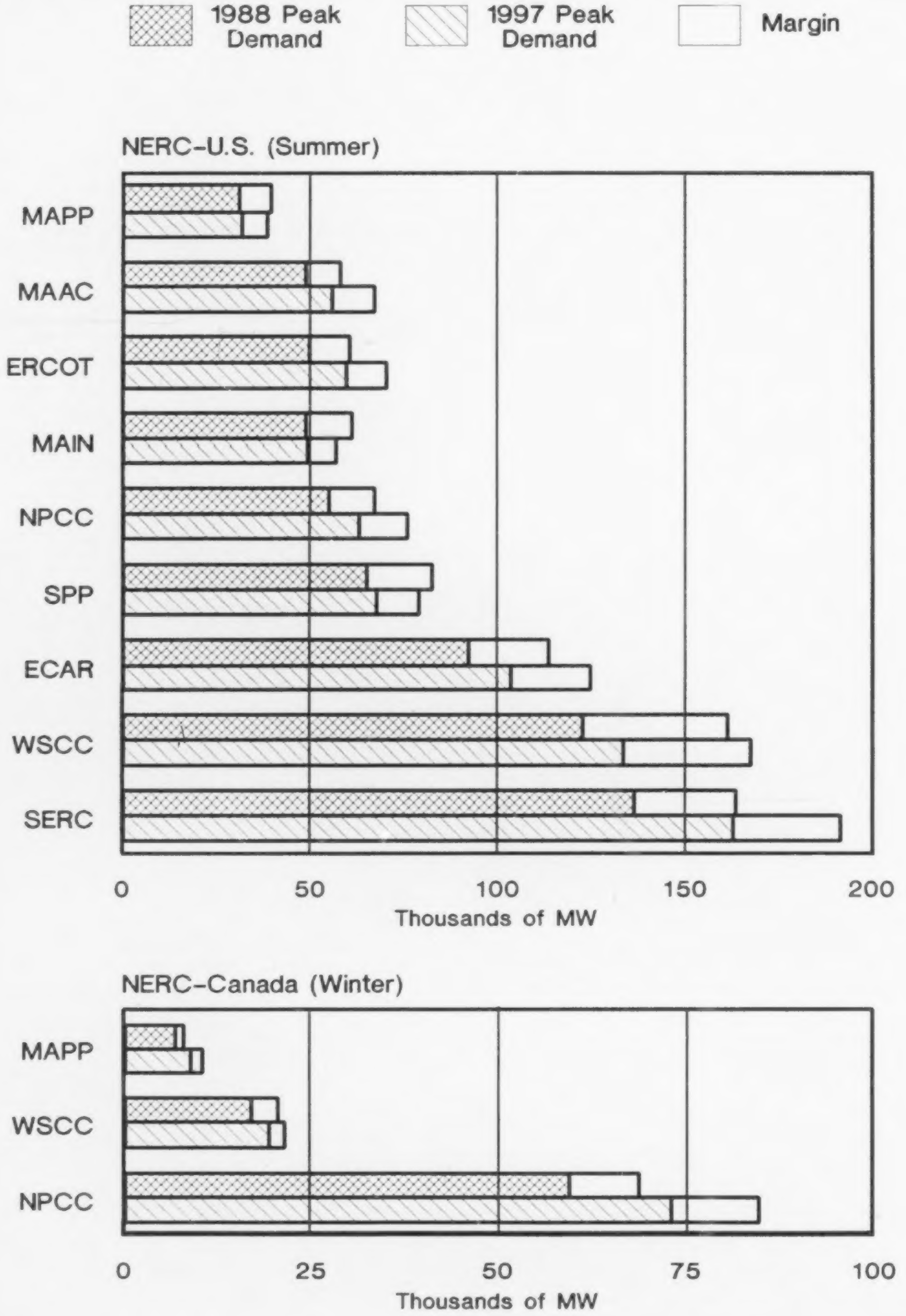
The amount by which the planned capacity resources exceeds the projected peak demand is called the margin. Summer and winter margins in megawatts for the NERC areas of the United States and Canada are shown in Figure 7 for 1988 and 1997. In calculating these margins, demands which are interruptible by contract including load management under the direct control of electric utility system operators have been subtracted from the projected peak demands of Tables 2 and 3. These adjusted peak demands were then subtracted from the planned capacity resources of Tables 6 (United States) and 7 (Canada) to obtain the megawatt margins in Figure 7.

Capacity margin in percent has been calculated by dividing the margin by total planned capacity resources and multiplying by 100. Estimated capacity margins for the NERC areas of the United States, Canada, and Mexico are shown in Tables 8 (summer) and 9 (winter).

The margins (megawatts) of Figure 7 and the capacity margins (%) of Table 8 and 9 are not in themselves sufficient indices of electric supply adequacy, security, or reliability. Capacity margins vary from Region to Region due to variations in regional characteristics, which, for example, include the duration of the peak demand season, the differences in the ages, sizes, and types of generating units, the number and capability of transmission interconnections, the physical characteristics of the Region and the associated geographical configuration of the electric utility systems, and the operating agreements among interconnected systems. However, the margin and capacity margin projections as shown are consistent with the Regional Reliability Councils' responses to DOE's IE-411 data report requests, and they are included here for convenience.

Figure 7

ESTIMATED MARGINS AT THE TIME OF REGIONAL PEAK DEMAND



North American
Electric
Reliability
Council

TABLE 6
1988-1997 PLANNED CAPACITY RESOURCES - SUMMER - MW
(UTILITY AND NON-UTILITY[a] GENERATING CAPACITY+SCHEDULED CAPACITY PURCHASES-CAPACITY SALES)

	PROJECTED										1988-1997 AVERAGE ANNUAL GROWTH (%)
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	
NERC-U.S.											
ECAR	92424	93416	96813	99609	100150	101047	101671	102647	103169	103566	1.3
ERCOT	49911	52408	53847	53971	54804	55372	55994	56181	57239	59752	2.0
MAAC	48856	51173	52245	52668	54009	53652	53818	54174	54868	55842	1.5
MAIN	48888	48942	49027	49059	49241	49341	49355	49494	49348	49261	.1
CMNWLTH EDISON	22284	21957	21952	21952	21972	21972	21972	21972	21872	21685	-.3
EAST MISSOURI	8119	8249	8254	8334	8339	8344	8349	8354	8358	8368	.3
S CENT ILLINOIS	8997	9113	9118	9239	9239	9239	9239	9239	9182	9182	.2
WIS-UPPER MICH	9488	9623	9703	9534	9691	9786	9795	9929	9936	10026	.6
MAPP	30886	30621	30514	30592	30629	31150	31115	31333	31443	31889	.4
NPCC	55027	57408	59730	61869	61533	61457	61678	62257	62791	63082	1.5
NEW YORK	32398	33768	34838	35414	35447	35670	35903	36473	37007	37319	1.6
NEPOOL	22629	23640	24892	26455	26086	25787	25775	25784	25784	25763	1.5
SERC	136546	140972	143602	147054	150746	152508	155915	157645	161665	162902	2.0
FLORIDA	32022	32745	33348	33651	34364	34414	35119	35623	36789	37277	1.7
SOUTHERN	31452	34111	34154	35090	35816	37045	37764	38391	39251	39405	2.5
TVA	27053	28056	29226	30291	31461	31461	32673	32673	33885	33885	2.5
VACAR	46019	46060	46874	48022	49105	49588	50359	50958	51740	52335	1.4
SPP	65100	65409	65640	65975	65978	65991	66020	66774	67295	67727	.4
SOUTHEAST	27449	27338	27533	27670	27462	27391	27289	27530	27569	27566	0
WEST CENTRAL	22028	22181	22036	22507	22483	22459	22397	22573	22913	23058	.5
NORTHERN	15623	15890	16071	15798	16033	16141	16334	16671	16813	17103	1.0
WSCC[b]	122848	125861	128012	128247	128583	129267	129873	131178	132500	133692	.9
NW POOL	43777	43978	43990	43840	43589	43632	43670	43807	42708	44208	.1
ROCKY MT-AREA	8793	9028	9178	9216	9228	9277	9259	9311	9788	10225	1.7
ARIZ-N.MEX	14965	15450	16041	16410	16442	16682	16984	17234	17437	17564	1.8
CALIF-SO.NEV	57722	59532	61158	61907	62628	62974	63464	64349	64937	65600	1.4
TOTAL(U.S.)	650486	666210	679430	689044	695673	699785	705439	711683	720318	727713	1.3
NERC-CANADA											
MAPP	6570	6570	6662	7428	8007	8127	8127	8219	8219	8495	2.9
NPCC	57905	61420	60180	61237	62832	64582	65527	68661	69821	70480	2.2
NEW BRUNSWICK	2935	2985	3035	3035	3365	3441	3541	3541	3741	3741	2.7
NOVA SCOTIA	1968	1968	1968	1968	2118	2118	2268	2568	2718	2718	3.7
ONTARIO	26328	28832	28746	29702	30603	31256	31286	31589	31744	31903	2.2
QUEBEC	26674	27635	26431	26532	26746	27767	28432	30963	31618	32118	2.1
WSCC	17787	17880	18220	18479	18865	18860	18860	19034	19394	19828	1.2
TOTAL(CANADA)	82262	85870	85062	87144	89704	91569	92514	95914	97434	98803	2.1
NERC-MEXICO											
WSCC	808	808	953	1098	1148	1198	1343	1343	1343	1488	7.0
TOTAL(MEXICO)	808	808	953	1098	1148	1198	1343	1343	1343	1488	7.0
NERC-TOTAL	733556	752888	765445	777286	786525	792552	799296	808940	819095	828004	1.4

[a] Non-utility generating capacity includes the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak.

[b] Since the subregional peak hour demands may occur in different months than the coincident total WSCC-U.S. peak hour demand, the sum of the individual subregional resources based on those peak hour demands may not always equal the WSCC-U.S. total. Also, the sum of the subregional resources does not equal the total WSCC-U.S. resources because in some cases firm power transfers have been reported for which either the buying or the selling system has not yet been identified.

North American
Electric
Reliability
Council

TABLE 7
1988-1997 PLANNED CAPACITY RESOURCES - WINTER - MW
(UTILITY AND NON-UTILITY[a] GENERATING CAPACITY+SCHEDULED CAPACITY PURCHASES-CAPACITY SALES)

		PROJECTED									1988/89-1997/98 AVERAGE ANNUAL GROWTH (%)
	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	
NERC-U.S.											
ECAR	94925	97748	99073	101407	102274	102685	103814	104563	105152	105171	1.1
ERCOT	50097	53405	54247	54446	55118	55675	56163	56687	57608	60015	2.0
MAAC	52933	53656	54940	54939	56240	56124	56290	56706	57522	58669	1.1
MAIN	49618	49680	49881	49784	49974	50061	50330	50262	50099	49675	0
CMNWLTH EDISON	22521	22501	22501	22506	22521	22521	22521	22421	22234	21662	-.4
EAST MISSOURI	8021	8096	8100	8180	8185	8190	8400	8405	8410	8420	.5
S CENT ILLINOIS	9394	9239	9360	9360	9360	9360	9360	9303	9303	9303	-.1
WIS-UPPER MICH	9682	9844	9920	9738	9908	9990	10049	10133	10152	10290	.7
MAPP	30533	30477	30645	30681	30970	31782	31795	32042	32071	32318	.6
NPCC	56741	59507	62310	62507	62453	62461	62698	63279	64143	64053	1.4
NEW YORK	32658	34036	35105	35681	35715	35938	36171	36745	37609	37591	1.6
NEPOOL	24083	25471	27205	26826	26738	26523	26527	26534	26534	26462	1.1
SERC	140919	142873	146353	149930	152836	156505	158409	162218	163834	164604	1.7
FLORIDA	33709	34140	34641	34984	35608	36718	37102	37643	38395	38493	1.5
SOUTHERN	34066	34032	34802	35072	36198	37027	37746	39203	39231	39350	1.6
TVA	27243	28308	29478	31713	31713	32925	32925	34137	34137	34137	2.5
VACAR	45901	46393	47432	48161	49317	49835	50636	51235	52071	52624	1.5
SPP	65566	65795	65910	66177	66269	66147	66520	67003	67508	67721	.4
SOUTHEAST	27489	27253	27783	27531	27431	27321	27530	27642	27566	27452	0
WEST CENTRAL	22148	22340	22167	22619	22575	22454	22424	22453	22896	22932	.4
NORTHERN	15929	16202	15960	16027	16263	16372	16566	16908	17046	17337	.9
WSCC[b]	126700	129557	130280	131030	132042	132753	133616	135022	136208	136386	.8
NW POOL	46998	47149	47165	47408	47947	47997	48163	48352	48441	48100	.3
ROCKY MT-AREA	9031	9121	9343	9262	9267	9359	9353	9426	9911	10349	1.5
ARIZ-N.MEX	14677	15380	15853	16392	16301	16566	16503	17043	17278	17255	1.8
CALIF-SO.NEV	55032	56674	58060	58385	58894	59207	59805	60543	60886	61955	1.3
TOTAL(U.S.)	668032	682698	693639	700901	708176	714193	719635	727782	734145	738612	1.1
NERC-CANADA											
MAPP	6551	6551	6891	7541	8120	8120	8120	8212	8212	8617	3.1
NPCC	59451	62436	63378	64656	66784	68772	69202	72162	72799	72944	2.3
NEW BRUNSWICK	2985	3035	3035	3365	3465	3841	3541	3741	3741	3741	2.5
NOVA SCOTIA	1968	1968	1968	2118	2118	2268	2568	2718	2718	2718	3.7
ONTARIO	26506	28358	29221	30122	31196	31669	31765	32076	32286	32316	2.2
QUEBEC	27992	29075	29154	29051	30005	30994	31328	33627	34054	34169	2.2
WSCC	16773	17239	17495	17881	17876	17876	18076	18436	18876	19236	1.5
TOTAL(CANADA)	82775	86226	87764	90078	92780	94768	95398	98810	99887	100797	2.2
NERC-MEXICO											
WSCC	808	808	1098	1098	1148	1198	1343	1343	1343	1488	7.0
TOTAL(MEXICO)	808	808	1098	1098	1148	1198	1343	1343	1343	1488	7.0
NERC-TOTAL	751615	769732	782501	792077	802104	810159	816376	827935	835375	840897	1.3

---

[a] Non-utility generating capacity includes the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak.

[b] Since the subregional peak hour demands may occur in different months than the coincident total WSCC-U.S. peak hour demand, the sum of the individual subregional resources based on those peak hour demands may not always equal the WSCC-U.S. total. Also, the sum of the subregional resources does not equal the total WSCC-U.S. resources because in some cases firm power transfers have been reported for which either the buying or the selling system has not yet been identified.

North American
Electric
Reliability
Council

TABLE 8
ESTIMATED CAPACITY MARGINS AT THE TIME OF SUMMER PEAK DEMAND - %(CAPACITY RESOURCES)
(1988-1997 FORECAST)

	PROJECTED									
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.										
ECAR	23.0	22.2	23.9	24.8	24.1	23.5	22.8	22.3	21.4	20.5
ERCOT	21.3	23.1	23.6	22.0	21.1	19.8	19.0	17.3	16.4	17.8
MAAC	19.0	21.7	22.2	21.7	22.7	21.1	20.4	20.0	20.0	20.3
MAIN	25.4	24.3	23.5	22.3	21.4	20.3	19.1	18.1	16.6	15.2
CMNWLTH EDISON	29.8	27.4	26.0	24.4	22.9	21.3	19.7	18.1	16.1	13.8
EAST MISSOURI	18.0	18.3	17.6	17.2	16.1	15.0	13.9	13.1	12.2	11.3
S CENT ILLINOIS	27.9	28.3	27.7	28.0	27.4	26.7	25.7	24.7	23.3	22.3
WIS-UPPER MICH	19.0	18.8	19.0	16.5	16.8	16.8	15.9	16.2	15.3	15.2
MAPP	28.4	26.7	25.3	24.7	23.8	24.1	22.8	22.1	21.1	20.9
NPCC	22.1	23.9	25.3	26.3	24.5	23.0	22.2	21.7	21.2	20.5
NEW YORK	25.5	27.3	28.2	28.4	27.7	27.4	27.1	27.5	27.8	27.7
NEPOOL	17.2	19.1	21.1	23.5	20.2	16.9	15.2	13.5	11.7	10.0
SERC	20.0	20.6	19.8	19.9	20.2	19.3	19.3	18.6	18.8	17.7
FLORIDA	23.2	22.6	21.6	20.1	19.7	17.8	17.5	17.0	18.0	17.3
SOUTHERN	12.9	17.6	15.5	15.8	15.7	16.7	16.4	16.0	16.0	14.4
TVA	25.7	27.2	28.8	29.6	31.9	30.4	31.4	29.9	30.8	29.2
VACAR	19.3	17.5	15.8	16.5	16.3	15.3	14.8	14.3	13.8	13.1
SPP	26.7	25.9	25.1	24.1	22.6	21.2	19.7	19.0	17.9	16.6
SOUTHEAST	26.5	25.5	25.8	25.4	23.6	22.6	21.1	20.5	19.0	17.4
WEST CENTRAL	27.7	26.7	24.6	24.7	23.0	21.2	18.9	17.6	16.8	15.4
NORTHERN	25.6	25.2	24.4	21.0	20.3	19.0	18.2	18.3	17.4	17.1
WSCC	31.5	31.9	31.8	30.4	29.4	28.4	27.4	26.8	26.1	25.5
NW POOL	42.5	42.0	41.5	40.2	39.3	38.5	37.8	37.1	34.7	36.0
ROCKY MT-AREA	30.9	31.0	30.3	28.9	27.4	26.1	24.3	22.8	24.3	26.2
ARIZ-N.MEX	27.8	28.1	29.0	28.5	26.8	26.0	25.2	24.4	23.3	21.9
CALIF-SO.NEV	26.0	27.0	27.3	26.6	26.1	25.2	24.3	24.0	23.3	22.7
TOTAL(U.S.)	24.3	24.6	24.6	24.2	23.6	22.6	21.8	21.1	20.5	19.9
NERC-CANADA										
MAPP	38.6	36.5	35.4	40.1	43.0	42.4	41.2	40.6	39.5	40.2
NPCC	40.3	41.8	38.7	38.3	38.8	39.4	39.2	40.8	40.8	39.9
NEW BRUNSWICK	48.2	47.5	46.7	45.3	49.2	49.1	49.3	48.1	49.7	48.4
NOVA SCOTIA	48.5	46.4	39.3	37.3	40.0	39.0	41.2	46.6	48.2	46.7
ONTARIO	34.7	38.6	37.0	37.7	38.4	38.4	37.1	36.5	35.8	34.8
QUEBEC	44.3	44.2	39.7	38.2	37.8	39.4	40.2	44.0	44.1	43.4
WSCC	39.2	37.7	37.5	36.8	36.5	34.8	32.1	30.4	29.3	28.6
TOTAL(CANADA)	39.9	40.6	38.2	38.1	38.7	38.7	38.0	38.8	38.4	37.7
NERC-MEXICO										
WSCC	13.4	7.4	16.4	19.1	17.0	15.3	19.5	14.3	8.7	12.2
TOTAL(MEXICO)	13.4	7.4	16.4	19.1	17.0	15.3	19.5	14.3	8.7	12.2
NERC-TOTAL	26.0	26.4	26.1	25.8	25.3	24.4	23.7	23.1	22.6	22.0

North American
Electric
Reliability
Council

TABLE 9
ESTIMATED CAPACITY MARGINS AT THE TIME OF WINTER PEAK DEMAND - %(CAPACITY RESOURCES)
(1988-1997 FORECAST)

	PROJECTED									
	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
NERC-U.S.										
ECAR	27.0	27.9	27.9	28.3	27.7	26.8	26.3	25.5	24.7	23.6
ERCOT	37.1	38.8	37.8	35.9	34.5	33.3	32.2	30.0	28.5	29.3
MAAC	34.3	33.9	34.1	32.8	33.0	31.5	30.3	29.3	29.0	29.1
MAIN	40.9	39.9	39.0	37.7	36.7	35.6	34.7	33.5	32.1	30.2
CMNWLTH EDISON	48.0	46.9	45.9	44.8	43.7	42.5	41.4	39.9	38.2	35.3
EAST MISSOURI	35.6	34.6	32.6	31.2	29.3	27.5	27.5	26.1	24.4	22.9
S CENT ILLINOIS	41.6	39.7	39.6	38.8	37.8	36.8	35.6	34.1	32.9	31.8
WIS-UPPER MICH	28.0	28.5	28.1	25.7	26.0	25.6	25.1	24.9	24.1	24.1
MAPP	37.9	36.4	35.8	34.9	34.7	35.6	34.7	34.3	33.3	32.7
NPCC	26.5	28.4	30.4	29.6	28.7	27.8	27.1	26.8	26.8	25.9
NEW YORK	31.6	32.7	33.8	33.9	33.3	33.0	32.7	33.0	33.9	33.2
NEPOOL	19.7	22.5	26.0	23.8	22.5	20.7	19.5	18.1	16.7	15.5
SERC	23.8	22.7	22.7	23.0	22.6	22.6	22.0	22.2	21.3	20.0
FLORIDA	20.4	18.8	17.7	16.3	15.5	15.9	15.0	14.4	14.2	12.6
SOUTHERN	31.7	29.8	29.6	28.5	29.3	29.2	29.0	30.1	28.4	27.0
TVA	24.7	26.1	27.6	32.7	31.5	32.8	31.5	32.5	31.1	29.7
VACAR	19.8	18.2	18.3	17.3	17.1	16.1	15.7	15.1	14.7	14.0
SPP	45.5	44.8	43.8	42.8	41.7	40.2	39.2	38.2	37.1	35.8
SOUTHEAST	43.8	42.8	43.5	41.9	40.9	39.6	38.9	38.0	36.5	34.9
WEST CENTRAL	46.9	46.1	44.3	44.1	42.6	40.7	38.9	37.1	36.4	34.7
NORTHERN	46.7	46.2	43.7	42.4	41.7	40.6	40.0	40.0	39.1	38.7
WSCC	36.7	37.0	36.2	35.6	35.0	34.0	33.2	32.8	32.1	31.6
NW POOL	28.7	28.3	27.4	27.0	26.8	25.9	25.1	24.5	23.6	24.5
ROCKY MT-AREA	33.9	32.6	32.6	30.2	28.5	27.5	25.6	24.2	25.6	27.2
ARIZ-N.MEX	44.4	45.4	45.4	45.9	44.1	43.4	41.6	41.6	40.8	40.2
CALIF-SO.NEV	40.3	40.9	40.8	40.2	39.8	38.9	38.3	37.7	37.0	36.9
TOTAL(U.S.)	32.8	32.8	32.5	31.9	31.2	30.4	29.6	29.0	28.1	27.3
NERC-CANADA										
MAPP	17.6	14.6	16.0	20.8	24.4	22.5	20.7	19.6	18.1	20.3
NPCC	15.7	18.7	17.6	17.1	18.0	18.7	17.4	19.0	17.9	16.2
NEW BRUNSWICK	23.2	21.6	18.6	24.0	23.7	29.0	20.7	22.7	20.7	18.5
NOVA SCOTIA	27.2	21.8	16.2	19.2	16.4	19.4	26.6	28.4	26.2	24.0
ONTARIO	18.0	21.5	21.8	22.7	23.6	23.1	21.8	21.4	20.4	19.0
QUEBEC	11.8	15.4	13.4	10.3	11.5	12.8	11.7	15.5	14.4	12.8
WSCC	21.1	20.8	20.0	19.9	17.6	15.5	13.3	12.1	11.1	10.0
TOTAL(CANADA)	16.9	18.8	18.0	17.9	18.5	18.4	16.9	17.8	16.6	15.4
NERC-MEXICO										
WSCC	35.5	31.1	46.0	39.8	38.2	37.0	40.1	36.3	32.1	34.7
TOTAL(MEXICO)	35.5	31.1	46.0	39.8	38.2	37.0	40.1	36.3	32.1	34.7
NERC-TOTAL	31.1	31.2	30.9	30.3	29.8	29.0	28.1	27.7	26.8	25.9

INSTALLED GENERATING CAPACITY

The installed generating capacity includes those generating units which are existing, presently under construction, in various stages of planning, plus unit upgradings, less deratings, less unit removals. It includes utility-owned generating units and non-utility generators (NUGs) which utilities have reported as generating capacity.

The data included on NUGs is limited to only those NUGs which sell or are projected to sell electrical energy or capacity, or both, to electric utilities and which are reported as generating capacity or generating capacity additions by electric utilities in their system plans. NUGs treated by utilities as a reduction to peak demand or as capacity imports are not included in the installed generating capacity data.

Figure 8 shows the 1988 and 1997 projections of total installed generating capacity with a breakdown by fuel for NERC-U.S., NERC-Canada, and NERC-Mexico. Similarly, Table 10 shows the generating capacity percentage mix by fuel for all NERC Regions for the first and tenth years of the forecast.

The 1987 actual and 1988-1997 projections for installed generating capacity for the nine Regional Reliability Councils and their subregions are shown in Tables 11 (summer) and 14 (winter). These generating capacities correspond with the time of the projected seasonal peak demands for the Regions and subregions shown in Tables 2 and 3. A further breakdown of the regional and subregional summer generating capacity totals of Table 11, by fuel, is included in Appendix A.

Tables 12 and 13 show the summer generating capacities by fuel in megawatts and in percent of total megawatts, respectively, for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total. Tables 15 and 16 show the winter generating capacities for these areas on the same bases.

In summary, these tables show that the NERC-Total installed generating capacity will increase from 742,000 to 826,000 MW (summer) and from 760,000 to 839,000 MW (winter) over the 1988-1997 forecast period. (For tabulations of the total planned resources, which include scheduled capacity purchases and sales in addition to installed generating capacity, refer to Tables 6 and 7.)

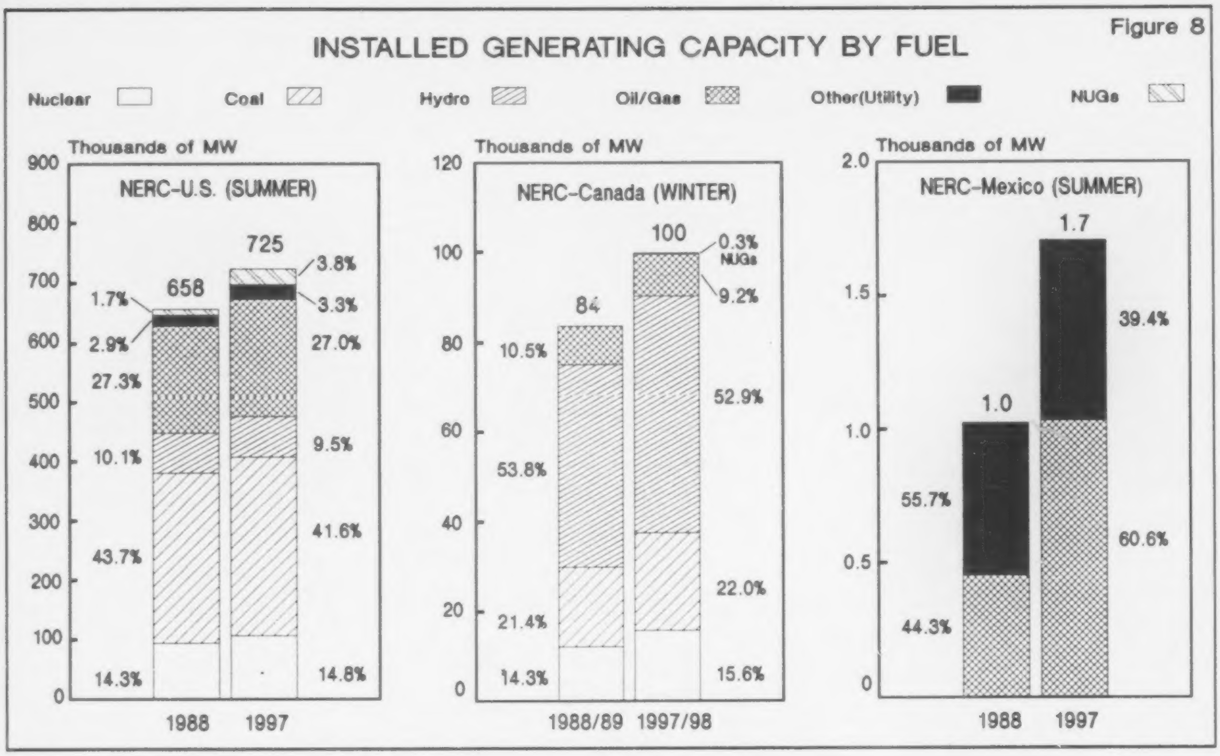


Figure 8

INSTALLED GENERATING CAPACITY BY FUEL

TABLE 10--INSTALLED GENERATING CAPACITY[a] BY FUEL (% TOTAL)

	1988						1997					
	Nuclear	Coal	Hydro[b]	Oil/Gas	Other (Utility)	NUGs	Nuclear	Coal	Hydro[b]	Oil/Gas	Other (Utility)	NUGs
ECAR	7.9	81.5	0.6	6.1	3.7	0.2	7.4	79.4	0.6	6.8	3.6	2.2
ERCOT	2.5	27.0	0.5	64.9	0.0	5.1	8.0	30.6	0.4	56.7	0.1	4.2
MAAC	23.8	35.3	2.2	35.5	2.6	0.6	22.9	31.9	1.9	35.0	2.6	5.7
MAIN	30.0	55.5	1.2	12.7	0.6	0.0	30.1	54.4	1.2	13.7	0.6	>0.0
MAPP-U.S.	12.0	65.5	9.7	11.8	0.3	0.7	11.8	65.7	8.6	12.7	0.3	0.9
NPCC-U.S.	17.7	14.0	10.0	50.5	5.0	2.8	20.3	12.6	9.7	45.3	4.4	7.7
SERC	20.1	48.1	8.6	18.9	3.2	1.1	20.8	42.9	7.4	20.6	4.7	3.6
SPP	8.8	40.5	3.7	45.5	1.4	0.1	8.5	39.5	3.8	46.1	1.2	0.9
WSCC-U.S.	9.6	23.5	33.7	24.7	4.6	3.9	8.6	23.0	32.3	24.5	5.4	6.2
NERC-U.S.	**14.3**	**43.7**	**10.1**	**27.3**	**2.9**	**1.7**	**14.8**	**41.6**	**9.5**	**27.0**	**3.3**	**3.8**
MAPP-Can.	0.0	27.3	66.9	5.8	0.0	0.0	0.0	26.6	67.3	6.1	0.0	0.0
NPCC-Can.	20.2	19.4	50.1	10.3	0.0	0.0	21.9	18.1	51.0	8.6	0.0	0.4
WSCC-Can.	0.0	25.6	61.3	13.1	0.0	0.0	0.0	33.5	53.8	12.7	0.0	0.0
NERC-Can.	**14.3**	**21.4**	**53.8**	**10.5**	**0.0**	**0.0**	**15.6**	**22.0**	**52.9**	**9.2**	**0.0**	**0.3**
NERC-Mex.[c]	**0.0**	**0.0**	**0.0**	**44.3**	**55.7[d]**	**0.0**	**0.0**	**0.0**	**0.0**	**60.6**	**39.4[d]**	**0.0**
NERC-Total	**14.3**	**41.2**	**15.0**	**25.4**	**2.6**	**1.5**	**14.9**	**39.1**	**14.7**	**24.9**	**3.0**	**3.4**

[a] Summer capabilities, except winter capabilities for Canada.
[b] Conventional hydro. Adverse hydro except for a few systems with median or average hydro.
[c] Northern portion of Baja California, Mexico only. [d] All geothermal capacity.

North American
Electric
Reliability
Council

TABLE 11
ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY[a] - SUMMER - MW
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	95319	97380	97408	99629	101665	102006	102453	102932	103608	104130	104527
ERCOT	47476	49880	52377	53816	53935	54743	55273	55848	55843	56722	59149
MAAC	48553	48582	49251	50319	51499	53036	53126	53289	53645	54339	55313
MAIN	44805	49607	49606	49448	49278	49428	49521	49523	49648	49491	49391
CMNWLTH EDISON	18672	21972	21972	21972	21972	21972	21972	21972	21972	21872	21685
EAST MISSOURI	8188	8222	8222	8222	8222	8222	8222	8222	8222	8222	8222
S CENT ILLINOIS	8904	9594	9589	9594	9594	9594	9594	9594	9594	9537	9537
WIS-UPPER MICH	9041	9819	9823	9660	9490	9640	9733	9735	9860	9860	9947
MAPP	28586	30619	30413	30308	30295	30332	30615	30615	30811	30899	31345
NPCC	52531	53714	56091	58437	59071	59137	59057	59274	59344	59378	59702
NEW YORK	30753	31894	33264	34334	34910	34943	35166	35399	35469	35503	35848
NEPOOL	21778	21820	22827	24103	24161	24194	23891	23875	23875	23875	23854
SERC	138687	139334	142959	145835	148262	151228	152888	156266	157969	161961	163169
FLORIDA	29126	29574	30345	30948	31251	31964	33214	34519	35623	36789	37277
SOUTHERN	34747	34624	37187	37201	38102	38102	38172	38262	38262	39094	39219
TVA	29596	29596	29596	30766	30766	31936	31936	33148	33148	34360	34360
VACAR	45218	45540	45831	46920	48143	49226	49566	50337	50936	51718	52313
SPP	66342	65621	65868	66211	66518	66348	66400	66305	66784	67768	68159
SOUTHEAST	27912	27148	27162	27477	27322	27149	27124	27064	27255	27157	27157
WEST CENTRAL	23198	23198	23333	23358	23774	23774	23774	23734	23808	24148	24318
NORTHERN	15232	15275	15373	15376	15422	15425	15502	15507	15721	16463	16684
WSCC[b]	125819	123022	126145	128064	128384	128720	129404	130035	131265	132612	134049
NW POOL	49675	44862	44997	45078	44939	44688	44727	44762	44768	43576	45073
ROCKY MT-AREA	9387	9556	9791	10012	10060	10076	10150	10142	10193	10678	11113
ARIZ-N.MEX	14545	15163	15796	15971	16129	16150	16364	16579	16754	16982	17134
CALIF-SO.NEV	51725	53299	55446	56895	56965	57677	58018	58407	59401	60056	60600
TOTAL(U.S.)	648118	657759	670118	682067	688907	694978	698737	704087	708917	717300	724804
NERC-CANADA											
MAPP	6546	6570	6570	6662	7428	8007	8127	8127	8219	8219	8495
NPCC	58218	58687	61412	61795	62760	64136	65168	66448	69316	70325	70984
NEW BRUNSWICK	3194	3185	3185	3185	3185	3185	3161	3561	3561	3761	3761
NOVA SCOTIA	1815	1968	1968	1968	1968	2118	2118	2268	2568	2718	2718
ONTARIO[c]	29656	29916	31847	31942	32898	33799	33831	33861	34164	34319	34478
QUEBEC	23553	23618	24412	24700	24709	25034	26058	26758	29023	29527	30027
WSCC	17894	17937	18030	18370	18629	19015	19010	19010	19184	19544	19978
TOTAL(CANADA)	82658	83194	86012	86827	88817	91158	92305	93585	96719	98088	99457
NERC-MEXICO											
WSCC	1028	1028	1028	1173	1318	1368	1418	1563	1563	1563	1708
TOTAL(MEXICO)	1028	1028	1028	1173	1318	1368	1418	1563	1563	1563	1708
NERC-TOTAL	731804	741981	757158	770067	779042	787504	792460	799235	807199	816951	825969

[a] At the time of actual and projected summer peak demand.

[b] Because of subregional peak demand diversities, the sum of the individual subregional capacities at the time of the respective subregional peak demands may not equal the total WSCC-U.S. capacity.

[c] Includes 2663 MW (Summer) of mothballed capacity some of which may be retired before 1997. However, no commitments to retire have been made.

North American
Electric
Reliability
Council

TABLE 12
ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY BY FUEL - SUMMER - MW
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
COAL	285886	287620	290128	291619	294165	295524	296131	296678	297549	298125	301427
NUCLEAR	84887	94230	99154	102671	103521	104691	104737	105949	105949	107161	107161
HYDRO[a]	70398[b]	66685	67010	67308	67443	67359	67565	67739	67789	67966	68833
PUMPED STORAGE	15925	16031	16117	16333	17088	17575	17589	17587	17586	18410	18409
GEOTHERMAL	1722	1783	1844	1854	1864	2004	2004	2004	2194	2244	2294
OIL[c]	57662	57769	58021	58429	58121	58499	58091	59055	59794	60254	60565
GAS[c]	54491	55214	55344	56047	56163	56869	57905	58913	60165	61908	63476
DUAL(OIL/GAS)FUEL[c,d]	68230	66284	66537	67232	67080	67452	67741	68182	69413	71111	71646
OTHER(UTILITY)	1176	1004	1048	1145	1332	1478	1626	2046	2499	2992	3337
NON-UTILITY GEN.	7741	11139	14915	19429	22130	23527	25348	25934	25979	27129	27656
TOTAL(U.S.)	648118	657759	670118	682067	688907	694978	698737	704087	708917	717300	724804
NERC-CANADA											
COAL	17568	17730	17844	18230	18596	19351	19339	19889	20189	20899	21535
NUCLEAR	11826	11928	13745	13790	14671	15552	15552	15552	15552	15552	15552
HYDRO[a]	44770[b]	44888	45682	45970	46699	47384	48528	49228	51858	52487	53116
PUMPED STORAGE	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	0	0	0	0	0	0	0	0	0	0	0
OIL[c]	5518	5549	5549	5549	5549	5549	5544	5544	5544	5544	5544
GAS[c]	2976	3099	3099	3145	3084	3084	3084	3084	3258	3258	3332
DUAL(OIL/GAS)FUEL[c,d]	0	0	93	93	93	93	93	93	93	93	93
OTHER(UTILITY)	0	0	0	0	0	0	0	0	0	0	0
NON-UTILITY GEN.	0	0	0	50	125	145	165	195	225	255	285
TOTAL(CANADA)	82658	83194	86012	86827	88817	91158	92305	93585	96719	98088	99457
NERC-MEXICO											
COAL	0	0	0	0	0	0	0	0	0	0	0
NUCLEAR	0	0	0	0	0	0	0	0	0	0	0
HYDRO[a]	0	0	0	0	0	0	0	0	0	0	0
PUMPED STORAGE	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	573	573	573	573	573	623	673	673	673	673	673
OIL[c]	286	286	286	431	576	576	576	721	721	721	866
GAS[c]	169	169	169	169	169	169	169	169	169	169	169
DUAL(OIL/GAS)FUEL[c,d]	0	0	0	0	0	0	0	0	0	0	0
OTHER(UTILITY)	0	0	0	0	0	0	0	0	0	0	0
NON-UTILITY GEN.	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	1028	1028	1028	1173	1318	1368	1418	1563	1563	1563	1708
NERC-TOTAL											
COAL	303454	305350	307972	309849	312761	314875	315470	316567	317738	319024	322962
NUCLEAR	96713	106158	112899	116461	118192	120243	120289	121501	121501	122713	122713
HYDRO[a]	115168[b]	111573	112692	113278	114142	114743	116093	116967	119647	120453	121949
PUMPED STORAGE	15925	16031	16117	16333	17088	17575	17589	17587	17586	18410	18409
GEOTHERMAL	2295	2356	2417	2427	2437	2627	2677	2677	2867	2917	2967
OIL[c]	63466	63604	63856	64409	64246	64624	64211	65320	66059	66519	66975
GAS[c]	57636	58482	58612	59361	59416	60122	61158	62166	63592	65335	66977
DUAL(OIL/GAS)FUEL[c,d]	68230	66284	66630	67325	67173	67545	67834	68275	69506	71204	71739
OTHER(UTILITY)	1176	1004	1048	1145	1332	1478	1626	2046	2499	2992	3337
NON-UTILITY GEN.	7741	11139	14915	19479	22255	23672	25513	26129	26204	27384	27941
NERC-TOTAL	731804	741981	757158	770067	779042	787504	792460	799235	807199	816951	825969

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.
[b] Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.
[c] Includes steam, combustion turbine (and diesel), and combined cycle units.
[d] Capable of burning oil or gas equally.

North American
Electric
Reliability
Council

TABLE 13
ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY BY FUEL - SUMMER - % TOTAL
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
COAL	44.1	43.7	43.3	42.8	42.7	42.5	42.4	42.1	42.0	41.6	41.6
NUCLEAR	13.1	14.3	14.8	15.1	15.0	15.1	15.0	15.0	14.9	14.9	14.8
HYDRO	10.9	10.1	10.0	9.9	9.8	9.7	9.7	9.6	9.6	9.5	9.5
PUMPED STORAGE	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.6	2.5
GEOTHERMAL	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
OIL	8.9	8.8	8.7	8.6	8.4	8.4	8.3	8.4	8.4	8.4	8.4
GAS	8.4	8.4	8.3	8.2	8.2	8.2	8.3	8.4	8.5	8.6	8.8
DUAL(OIL/GAS)FUEL	10.5	10.1	9.9	9.9	9.7	9.7	9.7	9.7	9.8	9.9	9.9
OTHER(UTILITY)	.2	.2	.2	.2	.2	.2	.2	.3	.4	.4	.5
NON-UTILITY GEN.	1.2	1.7	2.2	2.8	3.2	3.4	3.6	3.7	3.7	3.8	3.8
TOTAL(U.S.)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-CANADA											
COAL	21.3	21.3	20.7	21.0	20.9	21.2	21.0	21.3	20.9	21.3	21.7
NUCLEAR	14.3	14.3	16.0	15.9	16.5	17.1	16.8	16.6	16.1	15.9	15.6
HYDRO	54.2	54.0	53.1	52.9	52.6	52.0	52.6	52.6	53.6	53.5	53.4
PUMPED STORAGE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OIL	6.7	6.7	6.5	6.4	6.2	6.1	6.0	5.9	5.7	5.7	5.6
GAS	3.6	3.7	3.6	3.6	3.5	3.4	3.3	3.3	3.4	3.3	3.4
DUAL(OIL/GAS)FUEL	.0	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1
OTHER(UTILITY)	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NON-UTILITY GEN.	.0	.0	.0	.1	.1	.2	.2	.2	.2	.3	.3
TOTAL(CANADA)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-MEXICO											
COAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NUCLEAR	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
HYDRO	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
PUMPED STORAGE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	55.7	55.7	55.7	48.8	43.5	45.5	47.5	43.1	43.1	43.1	39.4
OIL	27.8	27.8	27.8	36.7	43.7	42.1	40.6	46.1	46.1	46.1	50.7
GAS	16.4	16.4	16.4	14.4	12.8	12.4	11.9	10.8	10.8	10.8	9.9
DUAL(OIL/GAS)FUEL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OTHER(UTILITY)	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NON-UTILITY GEN.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL(MEXICO)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-TOTAL											
COAL	41.5	41.2	40.7	40.2	40.1	40.0	39.8	39.6	39.4	39.1	39.1
NUCLEAR	13.2	14.3	14.9	15.1	15.2	15.3	15.2	15.2	15.1	15.0	14.9
HYDRO	15.7	15.0	14.9	14.7	14.7	14.6	14.6	14.6	14.8	14.7	14.8
PUMPED STORAGE	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2
GEOTHERMAL	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4
OIL	8.7	8.6	8.4	8.4	8.2	8.2	8.1	8.2	8.2	8.1	8.1
GAS	7.9	7.9	7.7	7.7	7.6	7.6	7.7	7.8	7.9	8.0	8.1
DUAL(OIL/GAS)FUEL	9.3	8.9	8.8	8.7	8.6	8.6	8.6	8.5	8.6	8.7	8.7
OTHER(UTILITY)	.2	.1	.1	.1	.2	.2	.2	.3	.3	.4	.4
NON-UTILITY GEN.	1.1	1.5	2.0	2.5	2.9	3.0	3.2	3.3	3.2	3.4	3.4
NERC-TOTAL[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

---

[a] Totals may not add due to rounding.

North American
Electric
Reliability
Council

TABLE 14
ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY[a] - WINTER - MW
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
NERC-U.S.											
ECAR	98986	98917	100564	101129	103263	103880	104091	104775	105524	106113	106132
ERCOT	48167	50071	53379	54216	54390	55024	55534	55999	56316	57043	59288
MAAC	50943	51164	51734	53774	53970	55517	55598	55761	56177	56993	58140
MAIN	48057	50545	50340	50409	50226	50389	50469	50521	50439	50264	49827
CMNWLTH EDISON	20281	22521	22521	22521	22521	22521	22521	22521	22421	22234	21662
EAST MISSOURI	8259	8295	8295	8295	8295	8295	8295	8295	8295	8295	8295
S CENT ILLINOIS	9716	9716	9716	9716	9716	9716	9716	9716	9659	9659	9659
WIS-UPPER MICH	9801	10013	9808	9877	9694	9857	9937	9989	10064	10076	10211
MAPP	30587	31325	31330	31257	31386	31621	31646	31696	31922	31929	32376
NPCC	54500	56228	59019	60319	60918	60861	60867	61100	61174	61538	61481
NEW YORK	31810	32954	34332	35401	35977	36011	36234	36467	36541	36905	36920
NEPOOL	22690	23274	24687	24918	24941	24850	24633	24633	24633	24633	24561
SERC	140138	143994	145059	148585	151137	152917	156082	158157	161939	164127	164868
FLORIDA	30163	31309	31740	32241	32584	33208	34718	35902	37043	38395	38493
SOUTHERN	34609	37166	37108	37849	38084	38084	38154	38244	39074	39074	39164
TVA	29848	29848	29848	31018	32188	32188	33400	33400	34612	34612	34612
VACAR	45518	45671	46363	47477	48281	49437	49810	50611	51210	52046	52599
SPP	65897	65909	66149	66378	66635	66579	66546	66752	66995	68024	68302
SOUTHEAST	27194	27165	27162	27388	27183	27124	27054	27255	27210	27157	27044
WEST CENTRAL	23274	23274	23434	23434	23850	23850	23810	23810	23884	24224	24394
NORTHERN	15429	15470	15553	15556	15602	15605	15682	15687	15901	16643	16864
WSCC[b]	125702[c]	127074	129823	130619	131269	132281	132992	133880	135211	136642	136877
NW POOL	49143	47234	47374	47377	47400	47935	47981	48017	48101	48186	47890
ROCKY MT-AREA	9694	9910	10002	10280	10189	10190	10281	10273	10345	10830	11265
ARIZ-N.MEX	14643	15101	15639	15908	16096	16155	16320	16282	16747	17007	17009
CALIF-SO.NEV	52222	53201	55126	56732	57154	57628	57938	58446	59296	59952	60713
TOTAL(U.S.)	662977	675227	687397	696686	703194	709069	713825	718641	725697	732673	737291
NERC-CANADA											
MAPP	6629	6551	6551	6891	7541	8120	8120	8120	8212	8212	8617
NPCC	59128	59404	62300	62418	63478	65348	66928	67392	70200	70839	70984
NEW BRUNSWICK	3194	3185	3185	3185	3185	3185	3561	3561	3761	3761	3761
NOVA SCOTIA	1968	1968	1968	1968	2118	2118	2268	2568	2718	2718	2718
ONTARIO[d]	30134	30472	32329	32404	33305	34218	34248	34344	34655	34865	34895
QUEBEC	23832	23779	24818	24861	24870	25827	26851	26919	29066	29495	29610
WSCC	17856	17675	18141	18397	18783	18778	18778	18978	19338	19778	20138
TOTAL(CANADA)	83613	83630	86992	87706	89802	92246	93826	94490	97750	98829	99739
NERC-MEXICO											
WSCC	1028	1028	1028	1318	1318	1368	1418	1563	1563	1563	1708
TOTAL(MEXICO)	1028	1028	1028	1318	1318	1368	1418	1563	1563	1563	1708
NERC-TOTAL	747618	759885	775417	785710	794314	802683	809069	814694	825010	833065	838738

---

[a] At the time of actual and projected winter peak demand.

[b] Because of subregional peak demand diversities, the sum of the individual subregional capacities at the time of the respective subregional peak demands may not equal the total WSCC-U.S. capacity.

[c] December 1987 actual.

[d] Includes 2667 MW (Winter) of mothballed capacity some of which may be retired before 1997. However, no commitments to retire have been made.

North American
Electric
Reliability
Council

TABLE 15
ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY BY FUEL - WINTER - MW
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
NERC-U.S.											
COAL	288512	291557	293327	294412	295991	297849	298141	298517	300345	301470	304239
NUCLEAR	90788	96867	102327	104611	105576	105622	106834	106834	108046	108046	108046
HYDRO[a]	69194[b]	67273	67810	67990	68432	69287	69416	69530	69771	70428	70123
PUMPED STORAGE	16390	16365	16365	16515	17275	17775	17775	17885	18732	18732	18669
GEOTHERMAL	1728	1860	1860	1870	2020	2020	2020	2160	2210	2260	2310
OIL[c]	63501	63726	64120	64429	64531	64527	64598	65135	66088	67128	67290
GAS[c]	55074	55612	56020	56420	56650	57192	58137	59191	59786	60696	61869
DUAL(OIL/GAS)FUEL[c,d]	68233	68387	68572	68903	69050	69467	69830	71026	71676	73484	73577
OTHER(UTILITY)	1120	1073	1283	1212	1279	1443	1638	2307	2812	3220	3480
NON-UTILITY GEN.	8437	12507	15713	20324	22390	23887	25436	26056	26231	27209	27688
TOTAL(U.S.)	662977	675227	687397	696686	703194	709069	713825	718641	725697	732673	737291
NERC-CANADA											
COAL	17751	17854	18240	18606	19142	19373	19899	20199	20909	21269	21909
NUCLEAR	11883	11993	13800	13800	14681	15562	15562	15562	15562	15562	15562
HYDRO[a]	45081[b]	44993	46032	46315	46924	48241	49265	49399	51919	52528	52768
PUMPED STORAGE	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	0	0	0	0	0	0	0	0	0	0	0
OIL[c]	5644	5635	5635	5635	5635	5630	5630	5630	5630	5630	5630
GAS[c]	3030	3155	3099	3089	3139	3139	3139	3339	3339	3419	3419
DUAL(OIL/GAS)FUEL[c,d]	0	0	136	136	136	136	136	136	136	136	136
OTHER(UTILITY)	224	0	0	0	0	0	0	0	0	0	0
NON-UTILITY GEN.	0	0	50	125	145	165	195	225	255	285	315
TOTAL(CANADA)	83613	83630	86992	87706	89802	92246	93826	94490	97750	98829	99739
NERC-MEXICO											
COAL	0	0	0	0	0	0	0	0	0	0	0
NUCLEAR	0	0	0	0	0	0	0	0	0	0	0
HYDRO[a]	0	0	0	0	0	0	0	0	0	0	0
PUMPED STORAGE	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	573	573	573	573	573	623	673	673	673	673	673
OIL[c]	455	455	455	745	745	745	745	890	890	890	1035
GAS[c]	0	0	0	0	0	0	0	0	0	0	0
DUAL(OIL/GAS)FUEL[c,d]	0	0	0	0	0	0	0	0	0	0	0
OTHER(UTILITY)	0	0	0	0	0	0	0	0	0	0	0
NON-UTILITY GEN.	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	1028	1028	1028	1318	1318	1368	1418	1563	1563	1563	1708
NERC-TOTAL											
COAL	306263	309411	311567	313018	315133	317222	318040	318716	321254	322739	326148
NUCLEAR	102671	108860	116127	118411	120257	121184	122396	122396	123608	123608	123608
HYDRO[a]	114275[b]	112266	113842	114305	115356	117528	118681	118929	121690	122956	122891
PUMPED STORAGE	16390	16365	16365	16515	17275	17775	17775	17885	18732	18732	18669
GEOTHERMAL	2301	2433	2433	2443	2593	2643	2693	2833	2883	2933	2983
OIL[c]	69600	69816	70210	70809	70911	70902	70973	71655	72608	73648	73955
GAS[c]	58104	58767	59119	59509	59789	60331	61276	62530	63125	64115	65288
DUAL(OIL/GAS)FUEL[c,d]	68233	68387	68708	69039	69186	69603	69966	71162	71812	73620	73713
OTHER(UTILITY)	1344	1073	1283	1212	1279	1443	1638	2307	2812	3220	3480
NON-UTILITY GEN.	8437	12507	15763	20449	22535	24052	25631	26281	26486	27494	28003
NERC-TOTAL	747618	759885	775417	785710	794314	802683	809069	814694	825010	833065	838738

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.
[b] Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.
[c] Includes steam, combustion turbine (and diesel), and combined cycle units.
[d] Capable of burning oil or gas equally.

North American
Electric
Reliability
Council

TABLE 16
ACTUAL AND PROJECTED INSTALLED GENERATING CAPACITY BY FUEL - WINTER - % TOTAL
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
NERC-U.S.											
COAL	43.5	43.2	42.7	42.3	42.1	42.0	41.8	41.5	41.4	41.1	41.3
NUCLEAR	13.7	14.3	14.9	15.0	15.0	14.9	15.0	14.9	14.9	14.7	14.7
HYDRO	10.4	10.0	9.9	9.8	9.7	9.8	9.7	9.7	9.6	9.6	9.5
PUMPED STORAGE	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.5
GEOTHERMAL	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
OIL	9.6	9.4	9.3	9.2	9.2	9.1	9.0	9.1	9.1	9.2	9.1
GAS	8.3	8.2	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.3	8.4
DUAL(OIL/GAS)FUEL	10.3	10.1	10.0	9.9	9.8	9.8	9.8	9.9	9.9	10.0	10.0
OTHER(UTILITY)	.2	.2	.2	.2	.2	.2	.2	.3	.4	.4	.5
NON-UTILITY GEN.	1.3	1.9	2.3	2.9	3.2	3.4	3.6	3.6	3.6	3.7	3.8
TOTAL(U.S.)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-CANADA											
COAL	21.2	21.3	21.0	21.2	21.3	21.0	21.2	21.4	21.4	21.5	22.0
NUCLEAR	14.2	14.3	15.9	15.7	16.3	16.9	16.6	16.5	15.9	15.7	15.6
HYDRO	53.9	53.8	52.9	52.8	52.3	52.3	52.5	52.3	53.1	53.2	52.9
PUMPED STORAGE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OIL	6.8	6.7	6.5	6.4	6.3	6.1	6.0	6.0	5.8	5.7	5.6
GAS	3.6	3.8	3.6	3.5	3.5	3.4	3.3	3.5	3.4	3.5	3.4
DUAL(OIL/GAS)FUEL	.0	.0	.2	.2	.2	.1	.1	.1	.1	.1	.1
OTHER(UTILITY)	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NON-UTILITY GEN.	.0	.0	.1	.1	.2	.2	.2	.2	.3	.3	.3
TOTAL(CANADA)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-MEXICO											
COAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NUCLEAR	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
HYDRO	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
PUMPED STORAGE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	55.7	55.7	55.7	43.5	43.5	45.5	47.5	43.1	43.1	43.1	39.4
OIL	44.3	44.3	44.3	56.5	56.5	54.5	52.5	56.9	56.9	56.9	60.6
GAS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
DUAL(OIL/GAS)FUEL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OTHER(UTILITY)	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NON-UTILITY GEN.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL(MEXICO)[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-TOTAL											
COAL	41.0	40.7	40.2	39.8	39.7	39.5	39.3	39.1	38.9	38.7	38.9
NUCLEAR	13.7	14.3	15.0	15.1	15.1	15.1	15.1	15.0	15.0	14.8	14.7
HYDRO	15.3	14.8	14.7	14.5	14.5	14.6	14.7	14.6	14.8	14.8	14.7
PUMPED STORAGE	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.2
GEOTHERMAL	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4
OIL	9.3	9.2	9.1	9.0	8.9	8.8	8.8	8.8	8.8	8.8	8.8
GAS	7.8	7.7	7.6	7.6	7.5	7.5	7.6	7.7	7.7	7.7	7.8
DUAL(OIL/GAS)FUEL	9.1	9.0	8.9	8.8	8.7	8.7	8.6	8.7	8.7	8.8	8.8
OTHER(UTILITY)	.2	.1	.2	.2	.2	.2	.2	.3	.3	.4	.4
NON-UTILITY GEN.	1.1	1.6	2.0	2.6	2.8	3.0	3.2	3.2	3.2	3.3	3.3
NERC-TOTAL[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

---

[a] Totals may not add due to rounding.

ELECTRICAL ENERGY PRODUCTION

A Region's annual net energy for load (NEL) may be supplied by a combination of internal generation plus imports (or purchases) from others (utilities and non-utility generators). Figure 9 shows that the electrical energy produced (generated) from primary energy sources in Region A may be used to supply internal load directly or it may also supply energy for pumping of hydro pumped storage units (or for charging of other energy storage type generating units). The hydro pumped storage units, in turn, can then generate electrical energy as scheduled. Electrical energy production less pumped storage load (input) plus pumped storage generation (output) equals Region A's internal generation for load. If Region A's internal generation is not adequate, then Region A will generally import (or purchase) additional energy from others (utilities and non-utility generators). Region A may also export (or sell) energy to others. Table 18 shows the 1987 actual and 1988-1997 projected electrical energy production, internal generation, imports less exports, and NEL for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total.

Figure 10 illustrates the projected growth in electrical energy production by fuel for NERC-U.S., NERC-Canada, and NERC-Mexico from 1988 to 1997. The year-by-year percentages for these three areas and for NERC-Total are shown in Table 19. Table 17 shows similar electrical energy production by percentage fuel mix for the NERC Regions for 1988 and 1997. The regional electrical energy production figures to which the Table 17 percentages apply are shown in Table 20. Further details on regional and subregional electrical energy production by fuel are included in Appendix B.

The total internal generation for load figures and imports (less exports) of Table 18 are shown on a regional basis in Tables 21 and 22, respectively. The annual NEL totals of Table 18 were previously defined on a regional basis in Table 5. Based on these projections, electric utilities will require 21% more NEL in 1997 than in 1988.

During 1988, utility generators are projected to provide about 98% of NERC's total electrical energy production and non-utility generators (NUGs) the remaining 2%. By 1997, utility generators will provide a decreasing percentage, about 96%, of NERC's total electrical energy production and NUGs an increasing percentage, or about 4%.

Figure 9

REGIONAL ELECTRICAL ENERGY PRODUCTION, GENERATION, AND NET ENERGY FOR LOAD

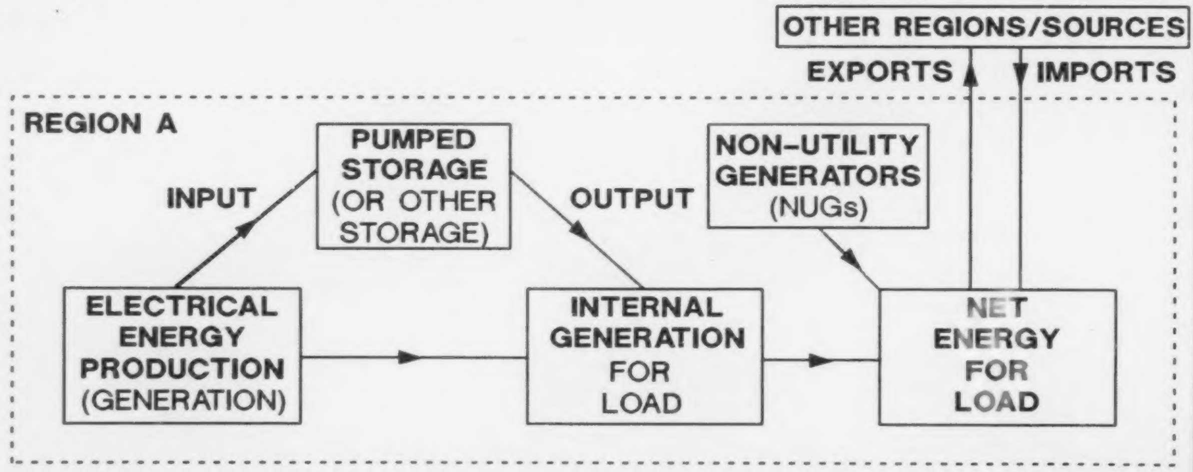
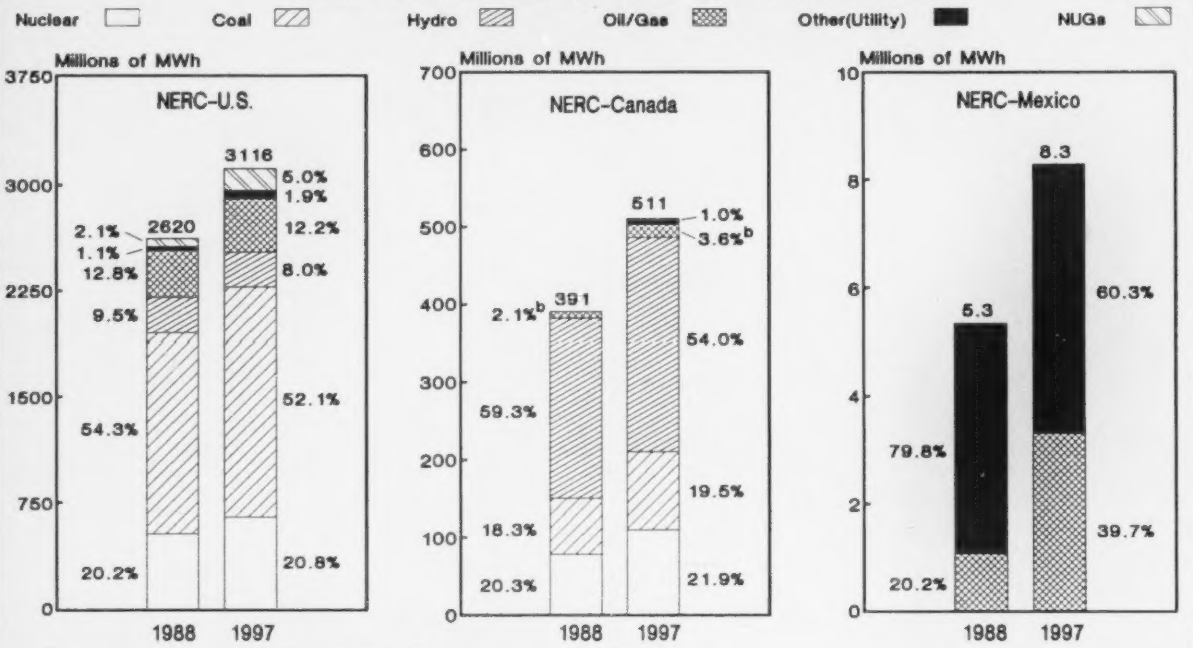

OTHER REGIONS/SOURCES
EXPORTS
IMPORTS
REGION A
PUMPED STORAGE (OR OTHER STORAGE)
INPUT
OUTPUT
NON-UTILITY GENERATORS (NUGs)
ELECTRICAL ENERGY PRODUCTION (GENERATION)
INTERNAL GENERATION FOR LOAD
NET ENERGY FOR LOAD

Figure 10

ELECTRICAL ENERGY PRODUCTION[a] BY FUEL



[a] From primary energy sources (pumped storage generation and net imports excluded)

[b] Gas includes 0.1% (1988) and 0.4% (1997) NUGs.

TABLE 17--ELECTRICAL ENERGY PRODUCTION BY FUEL (% TOTAL)

	1988						1997					
	Nuclear	Coal	Hydro[a]	Oil/Gas	Other (Utility)	NUGs	Nuclear	Coal	Hydro[a]	Oil/Gas	Other (Utility)	NUGs
ECAR	8.7	89.8	0.7	0.5	0.0	0.3	9.3	86.6	0.6	0.5	0.0	3.0
ERCOT	2.9	40.8	0.2	45.6	0.0	10.5	11.4	44.0	0.2	33.3	0.2	10.9
MAAC	31.2	52.6	2.1	11.7	0.6	1.8	32.4	44.6	1.6	9.7	0.4	11.3
MAIN	44.3	54.0	1.1	0.3	0.3	>0.0	42.3	54.7	1.0	1.7	0.3	0.0
MAPP-U.S.	19.9	68.6	10.5	0.6	0.3	0.1	17.8	70.8	9.8	1.0	0.3	0.3
NPCC-U.S.	27.7	19.0	13.7	36.5	0.0	3.1	31.2	17.1	11.4	27.6	0.0	12.7
SERC	27.3	59.8	5.8	5.8	>0.0	1.3	28.4	54.6	4.9	8.8	0.0	3.3
SPP	15.9	54.1	2.5	25.9	0.6	1.0	14.9	54.0	2.3	26.2	0.8	1.8
WSCC-U.S.	14.6	34.5	33.0	9.7	5.4	2.8	12.3	34.5	28.0	11.0	9.7	4.5
NERC-U.S.	**20.2**	**54.3**	**9.5**	**12.8**	**1.1**	**2.1**	**20.8**	**52.1**	**8.0**	**12.2**	**1.9**	**5.0**
MAPP-Can.	0.0	26.2	73.1	0.7	0.0	0.0	0.0	26.2	73.4	0.4	0.0	0.0
NPCC-Can.	28.9	11.9	57.7	1.4	0.0	0.1	30.9	12.3	54.0	2.3	0.0	0.5
WSCC-Can.	0.0	36.5	59.1	4.4	0.0	0.0	0.0	41.5	46.3	7.6	4.6	0.0
NERC-Can.	**20.3**	**18.3**	**59.3**	**2.0**	**0.0**	**0.1**	**21.9**	**19.5**	**54.0**	**3.2**	**1.0**	**0.4**
NERC-Mex.[b]	**0.0**	**0.0**	**0.0**	**20.2**	**79.8[c]**	**0.0**	**0.0**	**0.0**	**0.0**	**39.7**	**60.3[c]**	**0.0**
NERC-Total	**20.2**	**49.6**	**15.9**	**11.4**	**1.1**	**1.8**	**20.9**	**47.5**	**14.5**	**10.9**	**1.9**	**4.3**

[a] Conventional hydro. Adverse hydro except for a few systems with median or average hydro.

[b] Northern portion of Baja California, Mexico only. [c] Geothermal electrical energy production.

TABLE 18
ACTUAL AND PROJECTED TOTAL ELECTRICAL ENERGY PRODUCTION, INTERNAL GENERATION, AND NET ENERGY FOR LOAD BY FUEL - Millions kWh

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
COAL	1452636	1423884	1426730	1455076	1457269	1490285	1502800	1528105	1555255	1601324	1624725
NUCLEAR	452384	529242	587442	601710	638560	628469	636500	638688	642238	634642	649508
HYDRO[a]	251919[b]	247731	248870	248662	258026	250243	249540	250516	250412	250803	249907
OIL	107571	93699	88434	83905	76098	84191	91208	101448	105311	110875	120698
GAS	266578	240895	216635	206233	203004	214364	227484	232494	244579	254338	257084
GEOTHERMAL	12568	14083	15037	16097	16452	17387	17471	17752	19060	19334	19595
OTHER(UTILITY)	3647	14910	21658	23811	24959	25618	26647	30519	34142	36674	39874
NUGs	52667	55336	77190	102422	124678	132872	141396	145487	145965	151138	154186
ELECTRIC PRODUCTION[c]	2599970	2619780	2681996	2737916	2799046	2843429	2893046	2945009	2996962	3059128	3115577
PUMP.STOR.LOAD(-)	22179	18839	18375	18533	19635	18553	19770	20012	20851	21962	23552
PUMP.STOR.GEN.(+)	17422	15631	15609	15608	16392	15782	16499	16679	17251	17774	18907
INTERNAL GENERATION[d]	2595213	2616572	2679230	2734991	2795803	2840658	2889775	2941676	2993362	3054940	3110932
IMPORTS-EXPORTS	48319	72988	70232	67252	62874	75795	84295	90665	95795	96695	99025
NET ENERGY FOR LOAD[e]	2643532	2689560	2749462	2802243	2858677	2916453	2974070	3032341	3089157	3151635	3209957
NERC-CANADA											
COAL	78259	71686	66834	69197	69476	70125	74657	81018	86414	93294	99845
NUCLEAR	73426	79448	88166	93581	101257	106930	109889	112958	114051	113691	111678
HYDRO[a]	230003[b]	231677	235409	242428	250931	253591	254540	252492	263958	271176	275874
OIL	4781	3899	5284	6580	7535	8055	8434	7654	7875	7750	8252
GAS	1422	3831	3077	3287	3669	4660	6000	6344	7092	8190	8156
GEOTHERMAL	0	0	0	0	0	0	0	0	0	0	0
OTHER(UTILITY)	614	0	36	93	180	285	384	2476	3534	3742	4936
NUGs	98	270	388	580	760	952	1155	1365	1576	1786	1996
ELECTRIC PRODUCTION[c]	388603	390811	399194	415746	433808	444598	455059	464307	484500	499629	510737
PUMP.STOR.LOAD(-)	0	0	0	0	0	0	0	0	0	0	0
PUMP.STOR.GEN.(+)	0	0	0	0	0	0	0	0	0	0	0
INTERNAL GENERATION[d]	388603	390811	399194	415746	433808	444598	455059	464307	484500	499629	510737
IMPORTS-EXPORTS	-13965	340	4067	779	-5299	-4602	-3442	635	-5479	-9616	-8746
NET ENERGY FOR LOAD[e]	374638	391151	403261	416525	428509	439996	451617	464942	479021	490013	501991
NERC-MEXICO											
COAL	0	0	0	0	0	0	0	0	0	0	0
NUCLEAR	0	0	0	0	0	0	0	0	0	0	0
HYDRO[a]	0	0	0	0	0	0	0	0	0	0	0
OIL	1108	1079	1207	1600	1837	1833	1748	2092	2461	2868	3294
GAS	0	0	0	0	0	0	0	0	0	0	0
GEOTHERMAL	4078	4268	4374	4271	4300	4600	5000	5000	5000	5000	5000
OTHER(UTILITY)	-65	0	0	0	0	0	0	0	0	0	0
NUGs	0	0	0	0	0	0	0	0	0	0	0
ELECTRIC PRODUCTION[c]	5121	5347	5581	5871	6137	6433	6748	7092	7461	7868	8294
PUMP.STOR.LOAD(-)	0	0	0	0	0	0	0	0	0	0	0
PUMP.STOR.GEN.(+)	0	0	0	0	0	0	0	0	0	0	0
INTERNAL GENERATION[d]	5121	5347	5581	5871	6137	6433	6748	7092	7461	7868	8294
IMPORTS-EXPORTS	-1949	-1932	-1932	-1973	-1970	-1973	-1967	-1965	-1962	-1967	-1959
NET ENERGY FOR LOAD[e]	3172	3415	3649	3898	4167	4460	4781	5127	5499	5901	6335
NERC-TOTAL											
COAL	1530895	1495570	1493564	1524273	1526745	1560410	1577457	1609123	1641669	1694618	1724570
NUCLEAR	525810	608690	675608	695291	739817	735399	746389	751646	756289	748333	761186
HYDRO[a]	481922[b]	479408	484279	491090	508957	503834	504080	503008	514370	521979	525781
OIL	113460	98677	94925	92085	85470	94079	101390	111194	115647	121493	132244
GAS	268000	244726	219712	209520	206673	219024	233484	238838	251671	262528	265240
GEOTHERMAL	16646	18351	19411	20368	20752	21987	22471	22752	24060	24334	24595
OTHER(UTILITY)	4196	14910	21694	23904	25139	25903	27031	32995	37676	40416	44810
NUGs	52765	55606	77578	103002	125438	133824	142551	146852	147541	152924	156182
ELECTRIC PRODUCTION[c]	2993694	3015938	3086771	3159533	3238991	3294460	3354853	3416408	3488923	3566625	3634608
PUMP.STOR.LOAD(-)	22179	18839	18375	18533	19635	18553	19770	20012	20851	21962	23552
PUMP.STOR.GEN.(+)	17422	15631	15609	15608	16392	15782	16499	16679	17251	17774	18907
INTERNAL GENERATION[d]	2988937	3012730	3084005	3156608	3235748	3291689	3351582	3413075	3485323	3562437	3629963
IMPORTS-EXPORTS	32405	71396	72367	66058	55605	69220	78886	89335	88354	85112	88320
NET ENERGY FOR LOAD[e]	3021342	3084126	3156372	3222666	3291353	3360909	3430468	3502410	3573677	3647549	3718283

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.

[b] Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.

[c] Total electrical energy production from primary energy sources. Includes pumped storage load and NUGs, but excludes pumped storage generation and net imports.

[d] Total electrical energy generated internally to serve customers' loads. Includes pumped storage generation, but excludes pumped storage load. In this case, NUGs are also included.

[e] Total electrical energy required to serve customers' loads. Includes utility internal generation, NUGs, and imports less exports. Same as the NEL in Table 5.

TABLE 19
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCTION[a] BY FUEL - % TOTAL
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
COAL	55.9	54.4	53.2	53.1	52.1	52.4	51.9	51.9	51.9	52.3	52.1
NUCLEAR	17.4	20.2	21.9	22.0	22.8	22.1	22.0	21.7	21.4	20.7	20.8
HYDRO[b]	9.7	9.5	9.3	9.1	9.2	8.8	8.6	8.5	8.4	8.2	8.0
OIL	4.1	3.6	3.3	3.1	2.7	3.0	3.2	3.4	3.5	3.6	3.9
GAS	10.3	9.2	8.1	7.5	7.3	7.5	7.9	7.9	8.2	8.3	8.3
GEOTHERMAL	.5	.5	.6	.6	.6	.6	.6	.6	.6	.6	.6
OTHER(UTILITY)	.1	.6	.8	.9	.9	.9	.9	1.0	1.1	1.2	1.3
NUGs	2.0	2.1	2.9	3.7	4.5	4.7	4.9	4.9	4.9	4.9	4.9
ELECTRIC PRODUCTION[c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-CANADA											
COAL	20.1	18.3	16.7	16.6	16.0	15.8	16.4	17.4	17.8	18.7	19.5
NUCLEAR	18.9	20.3	22.1	22.5	23.3	24.1	24.1	24.3	23.5	22.8	21.9
HYDRO[b]	59.2	59.3	59.0	58.3	57.8	57.0	55.9	54.4	54.5	54.3	54.0
OIL	1.2	1.0	1.3	1.6	1.7	1.8	1.9	1.6	1.6	1.6	1.6
GAS	.4	1.0	.8	.8	.8	1.0	1.3	1.4	1.5	1.6	1.6
GEOTHERMAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OTHER(UTILITY)	.2	.0	.0	.0	.0	.1	.1	.5	.7	.7	1.0
NUGs	.0	.1	.1	.1	.2	.2	.3	.3	.3	.4	.4
ELECTRIC PRODUCTION[c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-MEXICO											
COAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NUCLEAR	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
HYDRO[b]	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OIL	21.6	20.2	21.6	27.3	29.9	28.5	25.9	29.5	33.0	36.5	39.7
GAS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
GEOTHERMAL	79.6	79.8	78.4	72.7	70.1	71.5	74.1	70.5	67.0	63.5	60.3
OTHER(UTILITY)	-1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NUGs	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ELECTRIC PRODUCTION[c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NERC-TOTAL											
COAL	51.1	49.6	48.4	48.2	47.1	47.4	47.0	47.1	47.1	47.5	47.4
NUCLEAR	17.6	20.2	21.9	22.0	22.8	22.3	22.2	22.0	21.7	21.0	20.9
HYDRO[b]	16.1	15.9	15.7	15.5	15.7	15.3	15.0	14.7	14.7	14.6	14.5
OIL	3.8	3.3	3.1	2.9	2.6	2.9	3.0	3.3	3.3	3.4	3.6
GAS	9.0	8.1	7.1	6.6	6.4	6.6	7.0	7.0	7.2	7.4	7.3
GEOTHERMAL	.6	.6	.6	.6	.6	.7	.7	.7	.7	.7	.7
OTHER(UTILITY)	.1	.5	.7	.8	.8	.8	.8	1.0	1.1	1.1	1.2
NUGs	1.8	1.8	2.5	3.3	3.9	4.1	4.2	4.3	4.2	4.3	4.3
ELECTRIC PRODUCTION[c]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

---

[a] Total electrical energy from primary energy sources. Includes pumped storage load and NUGs, but excludes pumped storage generation and net imports.

[b] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.

[c] Totals may not add due to rounding.

TABLE 20
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCTION[a] - Millions kWh
(1988-1997 FORECAST)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	437684	433567	442807	453158	462658	469046	476321	482735	490892	499487	506848
ERCOT	191172	197613	203538	208797	214614	220779	227764	233026	237546	245304	252623
MAAC	189187	184024	188997	191559	197830	203637	209574	215504	219942	225383	230575
MAIN	175366	183040	186556	189575	192561	196233	199853	204074	207151	208733	211396
CMNWLTH EDISON	69316	73295	74750	76020	77965	79360	81070	82695	84155	85770	87380
EAST MISSOURI	30405	31768	32066	32451	33335	33901	34623	35197	35143	35594	36364
S CENT ILLINOIS	35600	35426	36363	36671	36383	37406	37945	39227	40302	39154	38918
WIS-UPPER MICH	40045	42551	43377	44433	44878	45566	46215	46955	47551	48215	48734
MAPP	117927	124982	124541	127063	126759	129692	129492	131791	133135	135572	135644
NPCC	215921	218544	222965	225300	228345	232706	236872	241265	244936	250717	255307
NEW YORK	125742	124384	126099	127992	131338	132681	134561	136963	139443	143274	145511
NEPOOL	90179	94160	96866	97308	97007	100025	102311	104302	105493	107443	109796
SERC	554017	572944	588319	605169	627580	632348	639507	651105	662389	678030	692387
FLORIDA	106566	110839	115527	119881	124449	129690	135086	140987	145903	150946	155273
SOUTHERN	159164	159003	162501	167028	170178	170830	166214	164339	163824	165978	170448
TVA	96456	112456	115228	118290	120031	119743	121496	123755	126174	129212	131566
VACAR	191831	190646	195063	199970	212922	212085	216711	222024	226488	231894	235100
SPP	237793	230561	233059	237544	238650	244190	248442	253514	258042	261037	265585
SOUTHEAST	105588	100519	100531	100205	98091	99539	101081	102675	103627	102941	104301
WEST CENTRAL	78646	75342	76754	80747	83433	85898	87864	90075	92425	94836	97413
NORTHERN	53559	54700	55774	56592	57126	58753	59497	60764	61990	63260	63871
WSCC[b]	480903	474505	491214	499751	510049	514798	525221	531995	542929	554865	565212
NW POOL[b]	197175	195345	200096	202039	205367	207475	209062	211740	213578	216178	218142
ROCKY MT-AREA	41974	40510	41783	42028	42753	42852	43456	43115	43378	46427	47209
ARIZ-N.MEX	57454	61954	65881	67919	69461	70466	72502	74384	76047	78181	79123
CALIF-SO.NEV	184300	176696	183454	187765	192468	194005	200201	202756	209926	214079	220738
TOTAL(U.S.)	2599970	2619780	2681996	2737916	2799046	2843429	2893046	2945009	2996962	3059128	3115577
NERC-CANADA											
MAPP	31490	33713	34160	35935	40047	41857	42547	42828	42985	43281	43661
NPCC	268578	274691	282606	295278	307209	313716	321078	326150	342687	353833	361307
NEW BRUNSWICK	11791	11492	11868	13136	13992	14855	16467	18333	19407	20481	20728
NOVA SCOTIA	7401	7767	8395	9230	9644	9926	10125	10367	10637	10908	11181
ONTARIO	126556	132230	135702	140312	146073	150835	154486	159550	164043	166644	169598
QUEBEC	122830	123202	126641	132600	137500	138100	140000	137900	148600	155800	159800
WSCC	88535	82407	82428	84533	86552	89025	91434	95329	98828	102515	105769
TOTAL(CANADA)	388603	390811	399194	415746	433808	444598	455059	464307	484500	499629	510737
NERC-MEXICO											
WSCC	5121	5347	5581	5871	6137	6433	6748	7092	7461	7868	8294
TOTAL(MEXICO)	5121	5347	5581	5871	6137	6433	6748	7092	7461	7868	8294
NERC-TOTAL	2993694	3015938	3086771	3159533	3238991	3294460	3354853	3416408	3488923	3566625	3634608

---

[a] Total electrical energy production from primary energy sources. Includes pumped storage load and NUGs, but excludes pumped storage generation and net imports.

[b] The U.S. portion of the Northwest Power Pool is projecting an energy deficiency under adverse hydro conditions for 1994 through 1997. Included are exports that would be necessary from systems outside NWPP (U.S.) from 1994 to 1997: 4179, 6301, 8050, and 11,233 million kWh, respectively.

TABLE 21
ACTUAL AND PROJECTED UTILITY INTERNAL GENERATION FOR LOAD[a] + NUGs[b] - Millions kWh
(1988-1997 FORECAST)

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	436501	432150	441498	451786	461309	467650	474932	481259	489361	497932	505187
ERCOT	191172	197613	203538	208797	214614	220779	227764	233026	237546	245304	252623
MAAC	188283	183247	188264	190746	196976	202734	208674	214575	219005	224454	229662
MAIN	175126	182891	186540	189556	192518	196176	199792	204034	207093	208673	211322
CMNWLTH EDISON	69103	73165	74750	76020	77965	79360	81070	82695	84155	85770	87380
EAST MISSOURI	30378	31749	32050	32432	33292	33844	34562	35157	35085	35534	36290
S CENT ILLINOIS	35600	35426	36363	36671	36383	37406	37945	39227	40302	39154	38918
WIS-UPPER MICH	40045	42551	43377	44433	44878	45566	46215	46955	47551	48215	48734
MAPP	117927	124982	124541	127063	126759	129692	129492	131791	133135	135572	135644
NPCC	214582	217595	221937	224339	227274	231717	235848	240253	243921	249784	254335
NEW YORK	124920	124033	125754	127646	130965	132311	134197	136621	139100	142989	145259
NEPOOL	89662	93562	96183	96693	96309	99406	101651	103632	104821	106795	109076
SERC	552453	571765	587224	604022	626278	631227	638195	649786	660943	676046	690205
FLORIDA	106566	110839	115527	119881	124449	129690	135086	140987	145903	150946	155273
SOUTHERN	158936	158934	162431	166959	170108	170761	166153	164287	163783	165425	169916
TVA	95972	111986	114899	118007	119734	119503	121228	123482	125840	128912	131160
VACAR	190979	190006	194367	199175	211987	211273	215728	221030	225417	230763	233856
SPP	237712	230491	232989	237474	238580	244120	248372	253444	257972	260967	265515
SOUTHEAST	105588	100519	100531	100205	98091	99539	101081	102675	103627	102941	104301
WEST CENTRAL	78565	75272	76684	80677	83363	85828	87794	90005	92355	94766	97343
NORTHERN	53559	54700	55774	56592	57126	58753	59497	60764	61990	63260	63871
WSCC	481457	475838	492699	501208	511495	516563	526706	533508	544386	556208	566439
NW POOL	197175	195345	200096	202039	205367	207475	209062	211740	213578	216178	218142
ROCKY MT-AREA	41876	40430	41665	41915	42628	42698	43302	42961	43224	46273	47055
ARIZ-N.MEX	57375	61876	65799	67835	69378	70392	72438	74324	75976	78085	79024
CALIF-SO.NEV	185031	178187	185139	189419	194122	195998	201904	204483	211608	215672	222218
TOTAL(U.S.)	2595213	2616572	2679230	2734991	2795803	2840658	2889775	2941676	2993362	3054940	3110932
NERC-CANADA											
MAPP	31490	33713	34160	35935	40047	41857	42547	42828	42985	43281	43661
NPCC	268578	274691	282606	295278	307209	313716	321078	326150	342687	353833	361307
NEW BRUNSWICK	11791	11492	11868	13136	13992	14855	16467	18333	19407	20481	20728
NOVA SCOTIA	7401	7767	8395	9230	9644	9926	10125	10367	10637	10908	11181
ONTARIO	126556	132230	135702	140312	146073	150835	154486	159550	164043	166644	169598
QUEBEC	122830	123202	126641	132600	137500	138100	140000	137900	148600	155800	159800
WSCC	88535	82407	82428	84533	86552	89025	91434	95329	98828	102515	105769
TOTAL(CANADA)	388603	390811	399194	415746	433808	444598	455059	464307	484500	499629	510737
NERC-MEXICO											
WSCC	5121	5347	5581	5871	6137	6433	6748	7092	7461	7868	8294
TOTAL(MEXICO)	5121	5347	5581	5871	6137	6433	6748	7092	7461	7868	8294
NERC-TOTAL	2988937	3012730	3084005	3156608	3235748	3291689	3351582	3413075	3485323	3562437	3629963

---

[a] Total electrical energy generated internally to serve customers' loads. Includes pumped storage generation, but excludes pumped storage load.

[b] Non-Utility Generators (NUGs). See Table 6, footnote a.

North American
Electric
Reliability
Council

TABLE 22
ACTUAL AND PROJECTED NET ELECTRICAL ENERGY IMPORTS (LESS EXPORTS) - Millions kWh
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	-27762	-19950	-19898	-25286	-28409	-28450	-29332	-29259	-30261	-31632	-32287
ERCOT	4228	1158	2060	2713	3626	4349	4689	4704	4665	4483	4866
MAAC	18724	24587	23241	24538	22523	21077	19492	17956	17387	15977	14615
MAIN	6846	1621	1195	1234	1726	1512	1297	614	982	2890	3859
CMNWLTH EDISON	4547	585	475	730	335	490	380	405	595	680	820
EAST MISSOURI	1438	399	646	818	672	832	752	784	1416	1520	1364
S CENT ILLINOIS	-1411	-1361	-2192	-1987	-1206	-1762	-1807	-2476	-2921	-1147	-248
WIS-UPPER MICH	2272	1998	2266	1673	1925	1952	1972	1901	1892	1837	1923
MAPP	-4864	-8057	-5848	-6458	-4703	-5303	-2914	-2899	-1791	-1804	684
NPCC	24481	26605	27112	29941	31791	32232	33063	33232	34438	33446	33222
NEW YORK	9523	11586	12086	13086	12186	13316	13946	13606	13276	11456	11156
NEPOOL	14958	15019	15026	16855	19605	18916	19117	19626	21162	21990	22066
SERC	21282	9218	10043	9315	2458	11906	20461	24971	28848	30125	30622
FLORIDA	18668	19356	19860	20929	21476	21593	21061	19888	19487	18967	19190
SOUTHERN	-18929	-16778	-16779	-17503	-17302	-14725	-7205	-1743	2326	4374	3714
TVA	15058	-232	120	154	53	-169	241	257	287	-32	362
VACAR	6485	6872	6842	5735	-1769	5207	6364	6569	6748	6816	7356
SPP	-9452	-442	1434	-84	2581	1929	2233	2512	3632	6546	7864
SOUTHEAST	-2312	4305	6019	6351	9250	9573	9210	9382	10363	13214	14106
WEST CENTRAL	-3756	-848	-788	-3142	-4205	-4872	-4872	-4806	-4700	-4647	-4923
NORTHERN	-3384	-3899	-3797	-3293	-2464	-2772	-2105	-2064	-2031	-2021	-1319
WSCC	14836	38248	30893	31339	31281	36543	35306	38834	37895	36664	35580
NW POOL	-11025	-74	-3080	-3404	-4163	-4179	-3835	-3876	-3028	-2734	-2743
ROCKY MT-AREA	-6518	-3843	-4188	-3430	-3256	-2425	-1982	-634	17	-1799	-1619
ARIZ-N.MEX	-2275	-5501	-6704	-6113	-5351	-4235	-4255	-4136	-3848	-4038	-3149
CALIF-SO.NEV	34654	47666	44865	44286	44051	47382	45378	47480	44754	45235	43091
TOTAL(U.S.)	48319	72988	70232	67252	62874	75795	84295	90665	95795	96695	99025
NERC-CANADA											
MAPP	-3958	-4270	-4364	-5115	-8180	-9054	-9095	-8683	-8100	-7638	-7313
NPCC	2303	7501	8905	6368	3208	4779	5980	9645	2948	-1651	-1106
NEW BRUNSWICK	-245	493	554	-240	-570	-1014	-2218	-3678	-4350	-5024	-4879
NOVA SCOTIA	577	453	202	179	173	173	173	173	173	173	173
ONTARIO	-101	-2511	-2465	-3323	-5587	-6578	-6574	-7650	-8575	-8600	-8300
QUEBEC[a]	2072	9066	10614	9752	9192	12198	14599	20800	15700	11800	11900
WSCC	-12310	-2891	-474	-474	-327	-327	-327	-327	-327	-327	-327
TOTAL(CANADA)	-13965	340	4067	779	-5299	-4602	-3442	635	-5479	-9616	-8746
NERC-MEXICO											
WSCC	-1949	-1932	-1932	-1973	-1970	-1973	-1967	-1965	-1962	-1967	-1959
TOTAL(MEXICO)	-1949	-1932	-1932	-1973	-1970	-1973	-1967	-1965	-1962	-1967	-1959
NERC-TOTAL	32405	71396	72367	66058	55605	69220	78886	89335	88354	85112	88320

---

[a] Although Quebec exports electrical energy to the United States, it also imports energy from Churchill Falls in Labrador (Newfoundland), sometimes becoming a net importer of electrical energy. Because Churchill Falls is not a NERC member, this results in NPCC-Canada becoming a net importer in certain years, and reduces the amount which NERC-Canada as a whole appears to be exporting to the United States.

FOSSIL FUEL REQUIREMENTS

This section of the report provides a tabulation of the fossil fuels actually used by the electric utilities in 1987 and projected to be used over the 1988-1997 period for electrical energy production. These estimates of coal, oil, and natural gas exclude the fuel requirements of non-utility generators.

Table 23 shows the actual and projected coal requirements for electrical energy production for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total. These same coal requirements are shown by NERC Region and subregion in Table 24. Tables 25 and 26 show similar data for oil, and Tables 27 and 28 for natural gas.

NERC-Total coal use is projected to increase by 16.9% (15.6% in the U.S. and 38% in Canada) from 1988 to 1997. Oil is also estimated to increase for NERC-Total over the forecast period by 29% (23.7% in U.S., 107% in Canada, and 205% in Mexico). Total natural gas use in NERC is also projected to increase by 7.5% (5.9% in the U.S. and 109% in Canada).

A comparison of 1996 projections, the last common year of last year's ten-year forecast and the current ten-year forecast, shows that on an absolute magnitude basis the utilities' fossil fuel requirements are projected to decrease by 10.2 million tons of coal, 12.2 million barrels of oil, and 64.3 million MCF of natural gas. (MCF means thousands of cubic feet.)

Utility generated electrical energy from fossil fuels will be supplemented by utility generated electrical energy from nuclear, hydro, geothermal and other utility units as well as from non-utility generators (NUGs). Table 18 provides an overview of NERC's projected electrical energy production by these various fuels.

Appendix C provides further detail on the industry's fossil fuel requirements by NERC Region and subregion for particular types of coal, oil, and natural gas.

TABLE 23
COAL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION BY TYPE - 1000's TONS
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
WESTERN LIGNITE[b]	62581	70137	69355	70288	70582	71082	72075	76502	78979	81636	87828
WESTERN COAL[b,d]	236468	228473	232068	245816	247595	254222	257410	261246	264678	270873	275622
OTHER COAL[b]	231892	226864	224146	224643	225482	229326	229810	231704	237161	247064	248922
TOTAL (U.S.)[c,d]	705191	693174	695819	713297	715509	731080	736445	749402	763468	785823	801372
NERC-CANADA											
WESTERN LIGNITE	10230	9296	9396	9757	9943	10338	11095	11369	11462	11773	12244
WESTERN COAL	23296	22538	23177	24143	25128	26310	26879	27847	28873	30446	31844
OTHER COAL	11500	10351	8233	8562	8055	7283	7945	9645	11052	12687	14125
TOTAL (CANADA)	45026	42185	40806	42462	43126	43931	45919	48861	51387	54906	58213
NERC-MEXICO											
WESTERN LIGNITE	0	0	0	0	0	0	0	0	0	0	0
WESTERN COAL	0	0	0	0	0	0	0	0	0	0	0
OTHER COAL	0	0	0	0	0	0	0	0	0	0	0
TOTAL (MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL											
WESTERN LIGNITE[b]	72811	79433	78751	80045	80525	81420	83170	87871	90441	93409	100072
WESTERN COAL[b,d]	259764	251011	255245	269959	272723	280532	284289	289093	293551	301319	307466
OTHER COAL[b]	243392	237215	232379	233205	233537	236609	237755	241349	248213	259751	263047
NERC-TOTAL[c,d]	750217	735359	736625	755759	758635	775011	782364	798263	814855	840729	859585

---

[a] Excludes fuel requirements of non-utility generators (NUGs).

[b] Western lignite, western coal, and other coal do not add to the total by the amount of the ECAR coal figures on Table 24.

[c] Includes ECAR coal figures shown on Table 24.

[d] Includes coal requirments for the 360 MW Springerville 1 coal-fired non-utility generator in the Arizona-New Mexico Power Area of WSCC-U.S.

North American
Electric
Reliability
Council

TABLE 24
REGIONAL COAL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION - 1000's TONS
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	174250	167700	170250	172550	171850	176450	177150	179950	182650	186250	189000
ERCOT	59855	61742	61875	63145	64033	65524	65798	70997	73887	76147	84976
MAAC	40004	38999	36543	37906	36720	38068	38531	39758	40137	41670	41272
MAIN	53975	50578	51283	53059	51702	54163	55064	55520	57073	57747	57440
CMNWLTH EDISON	12292	9610	8570	9410	8700	9640	10270	10250	10830	11420	11180
EAST MISSOURI	10307	10283	10834	11519	10926	12102	11411	11138	11959	11818	11552
S CENT ILLINOIS	15679	13986	14661	14567	14368	14247	14953	15398	15355	15217	15190
WIS-UPPER MICH	15697	16699	17218	17563	17708	18174	18430	18734	18929	19292	19518
MAPP	52991	52975	51978	58759	58016	59127	59768	60856	60782	63739	63890
NPCC	16156	16296	16613	15130	14716	15352	15501	15813	16233	16722	17143
NEW YORK	9939	10168	10939	9990	10065	10497	10525	10605	10886	11380	11635
NEPOOL	6217	6128	5674	5140	4651	4855	4976	5208	5347	5342	5508
SERC	137918	138285	136539	138990	140318	141287	140833	140643	144494	151307	153851
FLORIDA	18481	21645	22700	22902	22869	23041	23314	23209	25609	27945	27928
SOUTHERN	49740	48258	47800	49926	50576	51358	49884	47922	48296	49904	51609
TVA	33527	33771	31056	29420	29117	26528	27157	26473	27671	27632	29173
VACAR	36170	34611	34983	36742	37756	40360	40478	43039	42918	45826	45141
SPP	77234	78448	78391	80458	81293	82700	83419	85078	86333	87512	88452
SOUTHEAST	20454	21183	20941	20130	20375	21317	20783	21468	21605	21118	21607
WEST CENTRAL	29201	29982	30341	32122	32132	32639	33161	34171	34532	35521	36077
NORTHERN	27579	27283	27109	28206	28786	28744	29475	29439	30196	30873	30768
WSCC[b]	92808	88151	92347	93300	96861	98409	100381	100787	101879	104729	105348
NW POOL	36162	35809	38312	39088	40392	41272	42650	42561	42402	42605	42293
ROCKY MT-AREA	18951	16471	17064	17161	17383	17597	17857	17625	17726	19496	19980
ARIZ-N.MEX[b]	21769	20840	22421	23096	24112	24561	25285	26028	26833	27672	27815
CALIF-SO.NEV	15926	15031	14550	13955	14974	14979	14589	14573	14918	14956	15260
TOTAL(U.S.)[b]	705191	693174	695819	713297	715509	751080	736445	749402	763468	785823	801372
NERC-CANADA											
MAPP	8489	8093	8093	8447	8761	9150	9514	9668	9769	9973	10254
NPCC	16070	13952	11883	12115	11363	10875	11976	13796	15195	16937	18565
NEW BRUNSWICK	580	554	542	553	551	543	1008	1848	1993	2463	2480
NOVA SCOTIA	2289	2731	2867	2981	3096	3289	3373	3665	3983	4156	4216
ONTARIO	13201	10667	8474	8581	7716	7043	7595	8283	9219	10318	11869
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	20467	20140	20830	21900	23002	23906	24429	25397	26423	27996	29394
TOTAL(CANADA)	45026	42185	40806	42462	43126	43931	45919	48861	51387	54906	58213
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL[b]	750217	735359	736625	755759	758635	775011	782364	798263	814855	840729	859585

[a] Excludes fuel requirements of non-utility generators(NUGs).

[b] Includes coal requirements for the 360 MW Springerville 1 coal-fired non-utility generator in the Arizona-New Mexico Power Area of WSCC-U.S.

North American
Electric
Reliability
Council

TABLE 25
OIL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION BY TYPE - 1000's BARRELS
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
DISTILLATE OIL[b]	13712	13261	11531	9457	8742	8921	12255	12762	14347	13739	16480
DISTILLATE OIL-ST	6920	4967	4882	4783	4820	4764	4907	4869	4910	5070	5250
DISTILLATE OIL-CT	5823	7067	5915	4236	3618	3800	6179	4777	6091	5315	6400
DISTILLATE OIL-CC	969	1227	734	438	304	357	1169	3116	3346	3354	4830
RESIDUAL OIL[c]	162920	147569	138966	132791	120127	134295	144058	156223	162019	170786	182406
RESIDUAL OIL-ST	162845	146968	138427	132191	119468	133462	143176	155336	161210	170008	181590
RESIDUAL OIL-CT	67	77	87	218	298	439	433	404	312	263	277
RESIDUAL OIL-CC	8	524	452	382	361	394	449	483	497	515	539
CRUDE OIL-ST	35	0	0	0	0	0	0	0	0	0	0
TOTAL (U.S.)	176667	160830	150497	142248	128869	143216	156313	168985	176366	184525	198886
NERC-CANADA											
DISTILLATE OIL[b]	357	391	370	391	369	360	368	411	466	540	630
DISTILLATE OIL-ST	225	249	228	254	231	209	229	234	254	264	264
DISTILLATE OIL-CT	132	142	142	137	138	151	139	177	212	276	366
DISTILLATE OIL-CC	0	0	0	0	0	0	0	0	0	0	0
RESIDUAL OIL[c]	7883	5952	8029	9815	11221	12148	12716	11598	12001	11794	12472
RESIDUAL OIL-ST	7883	5952	8029	9815	11221	12148	12716	11598	12001	11794	12472
RESIDUAL OIL-CT	0	0	0	0	0	0	0	0	0	0	0
RESIDUAL OIL-CC	0	0	0	0	0	0	0	0	0	0	0
CRUDE OIL-ST	0	0	0	0	0	0	0	0	0	0	0
TOTAL (CANADA)	8240	6343	8399	10206	11590	12508	13084	12009	12467	12334	13102
NERC-MEXICO											
DISTILLATE OIL[b]	24	0	0	0	0	0	0	0	0	0	0
DISTILLATE OIL-ST	0	0	0	0	0	0	0	0	0	0	0
DISTILLATE OIL-CT	24	0	0	0	0	0	0	0	0	0	0
DISTILLATE OIL-CC	0	0	0	0	0	0	0	0	0	0	0
RESIDUAL OIL[c]	2159	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
RESIDUAL OIL-ST	2159	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
RESIDUAL OIL-CT	0	0	0	0	0	0	0	0	0	0	0
RESIDUAL OIL-CC	0	0	0	0	0	0	0	0	0	0	0
CRUDE OIL-ST	0	0	0	0	0	0	0	0	0	0	0
TOTAL (MEXICO)	2183	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
NERC-TOTAL											
DISTILLATE OIL[b]	14093	13652	11901	9848	9111	9281	12623	13173	14813	14279	17110
DISTILLATE OIL-ST	7145	5216	5110	5037	5051	4973	5136	5103	5164	5334	5514
DISTILLATE OIL-CT	5979	7209	6057	4373	3756	3951	6318	4954	6303	5591	6766
DISTILLATE OIL-CC	969	1227	734	438	304	357	1169	3116	3346	3354	4830
RESIDUAL OIL[c]	172962	155638	149363	145745	134952	150039	160204	171926	178848	188207	201341
RESIDUAL OIL-ST	172887	155037	148824	145145	134293	149206	159322	171039	178039	187429	200525
RESIDUAL OIL-CT	67	77	87	218	298	439	433	404	312	263	277
RESIDUAL OIL-CC	8	524	452	382	361	394	449	483	497	515	539
CRUDE OIL-ST	35	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	187090	169290	161264	155593	144063	159320	172827	185099	193661	202486	218451

---

[a] Excludes fuel requirements of non-utility generators (NUGs).

[b] Includes No.1 and No.2 fuel oil, kerosene, and jet fuel. Also includes amounts used at coal-burning plants for startup and for flame stabilization.

[c] Includes No.4, No.5, and No.6 fuel oil.

North American
Electric
Reliability
Council

TABLE 26
REGIONAL OIL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION - 1000's BARRELS
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	2967	2830	2775	2765	2765	2765	2765	2765	2765	2765	2765
ERCOT	805	1143	963	1102	998	1015	1071	1030	1029	1181	1059
MAAC	26741	17402	10874	15450	9951	11516	9558	14515	16701	18019	20478
MAIN	4080	846	1043	1229	1326	1728	2174	2251	3271	3758	4976
CMNWLTH EDISON	3404	410	470	700	640	1255	1425	1565	2460	2830	3630
EAST MISSOURI	308	182	299	282	436	205	375	202	276	314	503
S CENT ILLINOIS	251	128	140	159	161	180	284	389	439	516	744
WIS-UPPER MICH	117	126	134	88	89	88	90	95	96	98	99
MAPP	381	298	322	355	387	402	430	416	456	464	552
NPCC	97313	112613	107459	87482	74885	81281	85460	88807	93919	100713	104755
NEW YORK	52149	51899	52019	44259	39346	39128	42732	42735	45800	48921	52092
NEPOOL	45164	60714	55440	43223	35539	42153	42728	46072	48119	51792	52663
SERC	39856	22526	24343	30736	35075	40984	51483	55143	54359	53748	58968
FLORIDA	33586	18939	21752	28371	32870	37833	45349	49675	48194	47809	52541
SOUTHERN	531	605	417	540	494	382	435	352	363	351	317
TVA	331	1400	700	559	620	421	488	482	595	655	879
VACAR	5408	1582	1474	1266	1091	2348	5211	4634	5207	4933	5231
SPP	885	1153	571	659	1047	1001	751	1375	1390	1242	2623
SOUTHEAST	552	762	147	233	464	477	212	815	842	686	1951
WEST CENTRAL	99	97	103	103	102	102	102	102	102	126	169
NORTHERN	234	294	321	323	481	422	437	458	446	430	503
WSCC	3639	2019	2147	2470	2435	2524	2621	2683	2476	2635	2710
NW POOL	407	0	0	0	0	0	32	384	384	384	384
ROCKY MT-AREA	26	30	28	34	34	35	35	39	42	40	39
ARIZ-N.MEX	79	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	3127	1989	2119	2436	2401	2489	2554	2260	2050	2211	2287
TOTAL(U.S.)	176667	160830	150497	142248	128869	143216	156313	168985	176366	184525	198886
NERC-CANADA											
MAPP	38	24	24	24	24	24	24	24	24	24	24
NPCC	8202	6319	8375	10182	11566	12484	13060	11985	12443	12310	13078
NEW BRUNSWICK	5566	4905	6524	7548	8850	10156	10769	10190	11319	11190	11522
NOVA SCOTIA	2203	987	1502	2259	2367	1998	1999	1356	522	373	492
ONTARIO	433	427	349	375	349	330	292	439	602	747	1064
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	8240	6343	8399	10206	11590	12508	13084	12009	12467	12334	13102
NERC-MEXICO											
WSCC	2183	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
TOTAL(MEXICO)	2183	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
NERC-TOTAL	187090	169290	161264	155593	144063	159320	172827	185099	193661	202486	218451

---

[a] Excludes fuel requirements for non-utility generators (NUGs).

North American
Electric
Reliability
Council

TABLE 27
NATURAL GAS REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION BY TYPE - 1000 MCF[b]
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
FIRM NAT.GAS	1776380	1692862	1466854	1399364	1386411	1486954	1578830	1599535	1682519	1772302	1774436
FIRM NAT.GAS-ST	1678656	1598298	1376240	1306964	1293296	1374088	1456296	1459925	1534169	1619398	1611783
FIRM NAT.GAS-CT	12851	11352	11208	12675	14226	13412	14816	12908	15478	18831	18954
FIRM NAT.GAS-CC	84873	83212	79406	79725	78889	99454	107718	126702	132872	134073	143699
INTER.NAT.GAS	993693	825154	806209	784749	773947	772404	799242	827591	860484	865752	890879
INTER.NAT.GAS-ST	926325	747187	739364	728095	719134	713851	706910	705471	722454	703824	715821
INTER.NAT.GAS-CT	27695	37496	25843	19036	18934	21195	27700	33623	35955	39752	41451
INTER.NAT.GAS-CC	39673	40471	41002	37618	35879	37358	64632	88497	102075	122176	133607
TOTAL (U.S.)	2770073	2518016	2273063	2184113	2160358	2259358	2378072	2427126	2543003	2638054	2665315
NERC-CANADA											
FIRM NAT.GAS	17808	32789	34282	28848	23974	23126	26336	40516	47860	49079	48392
FIRM NAT.GAS-ST	8314	25059	26509	21185	15752	14685	19006	30359	32790	33141	32003
FIRM NAT.GAS-CT	9494	7730	7773	7663	8222	8441	7330	10157	15070	15938	16389
FIRM NAT.GAS-CC	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS	13	8927	475	7611	15710	26067	35842	27170	28826	38420	38912
INTER.NAT.GAS-ST	13	8927	25	4775	12404	22236	31594	22483	23604	32610	32610
INTER.NAT.GAS-CT	0	0	450	2836	3306	3831	4248	4687	5222	5810	6302
INTER.NAT.GAS-CC	0	0	0	0	0	0	0	0	0	0	0
TOTAL (CANADA)	17821	41716	34757	36459	39684	49193	62178	67686	76686	87499	87304
NERC-MEXICO											
FIRM NAT.GAS	0	0	0	0	0	0	0	0	0	0	0
FIRM NAT.GAS-ST	0	0	0	0	0	0	0	0	0	0	0
FIRM NAT.GAS-CT	0	0	0	0	0	0	0	0	0	0	0
FIRM NAT.GAS-CC	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS-ST	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS-CT	0	0	0	0	0	0	0	0	0	0	0
INTER.NAT.GAS-CC	0	0	0	0	0	0	0	0	0	0	0
TOTAL (MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL											
FIRM NAT.GAS	1794188	1725651	1501136	1428212	1410385	1510080	1605166	1640051	1730379	1821381	1822828
FIRM NAT.GAS-ST	1686970	1623357	1402749	1328149	1309048	1388773	1475302	1490284	1566959	1652539	1643786
FIRM NAT.GAS-CT	22345	19082	18981	20338	22448	21853	22146	23065	30548	34769	35343
FIRM NAT.GAS-CC	84873	83212	79406	79725	78889	99454	107718	126702	132872	134073	143699
INTER.NAT.GAS	993706	834081	806684	792360	789657	798471	835084	854761	889310	904172	929791
INTER.NAT.GAS-ST	926338	756114	739389	732870	731538	736087	738504	727954	746058	736434	748431
INTER.NAT.GAS-CT	27695	37496	26293	21872	22240	25026	31948	38310	41177	45562	47753
INTER.NAT.GAS-CC	39673	40471	41002	37618	35879	37358	64632	88497	102075	122176	133607
NERC-TOTAL	2787894	2559732	2307820	2220572	2200042	2308551	2440250	2494812	2619689	2725553	2752619

---

[a] Excludes fuel requirements of non-utility generators (NUGs).
[b] MCF means thousands of cubic feet. Therefore, 1000 MCF is equivalent to one (1) million cubic feet.

North American
Electric
Reliability
Council

TABLE 28
REGIONAL NATURAL GAS REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION - 1000 MCF[b]
(1988-1997 FORECAST)

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	11990	9500	8500	8500	8500	8500	8625	8675	8675	8675	8675
ERCOT	915571	911469	801943	762464	795811	810009	851376	828378	865243	897186	862582
MAAC	95021	133805	104848	78688	68212	70476	67750	79230	89110	104488	116209
MAIN	4541	3707	3258	2414	2675	3267	4763	6731	8559	9303	12240
CMNWLTH EDISON	1651	1155	695	180	385	510	695	795	1455	1855	2610
EAST MISSOURI	625	85	85	85	85	85	85	85	85	85	85
S CENT ILLINOIS	574	548	938	984	1103	928	2140	2755	3147	3706	5057
WIS-UPPER MICH	1691	1919	1540	1165	1102	1744	1843	3096	3872	3657	4488
MAPP	9391	7695	8065	9289	10067	10665	10425	10087	10993	11256	11494
NPCC	226628	157664	147356	124476	114359	104370	95639	95639	96758	96993	97292
NEW YORK	173393	150000	140000	120000	110000	100000	90000	90000	90000	90000	90000
NEPOOL	53235	7664	7356	4476	4359	4370	5639	5639	6758	6993	7292
SERC	195112	222583	219012	225885	234025	240308	251449	252813	253940	252903	258325
FLORIDA	174096	200840	202106	201956	208810	212995	219749	219365	219444	219384	219787
SOUTHERN	15919	16626	11739	14097	12575	12607	13461	12822	13047	13969	13894
TVA[c]	0	0	0	0	0	0	0	0	0	0	0
VACAR	5097	5117	5167	9832	12640	14706	18239	20626	21449	19550	24644
SPP	636841	620649	638925	628064	610425	644963	666914	681651	718382	707187	717049
SOUTHEAST	386846	382265	401321	387031	359087	379608	385878	387871	409893	388107	380473
WEST CENTRAL	238572	222983	221351	225203	231958	247243	258398	264056	279037	287072	301591
NORTHERN	11423	15401	16253	15830	19380	18112	22638	29724	29452	32008	34985
WSCC	674978	450944	341156	344333	316284	366800	421131	463922	491343	550063	581449
NW POOL	1436	7056	7092	7044	7044	7380	32259	35234	34814	35107	38606
ROCKY MT-AREA	5675	3692	3748	3994	4107	4309	4780	5105	5877	5101	3406
ARIZ-N.MEX	49342	41439	47593	39299	32089	35706	42097	47749	51036	53995	57207
CALIF-SO.NEV	618525	398757	282723	293996	273044	319405	341995	375834	399616	455860	482230
TOTAL(U.S.)	2770073	2518016	2273063	2184113	2160358	2259358	2378072	2427126	2543003	2638054	2665315
NERC-CANADA											
MAPP	2782	2794	2794	3953	5524	5674	3654	3875	2120	2008	2194
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	15039	38922	31963	32506	34160	43519	58524	63811	74566	85491	85110
TOTAL(CANADA)	17821	41716	34757	36459	39684	49193	62178	67686	76686	87499	87304
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	2787894	2559732	2307820	2220572	2200042	2308551	2440250	2494812	2619689	2725553	2752619

---

[a] Excludes fuel requirments of non-utility generators (NUGs).

[b] MCF means thousands of cubic feet. Therefore, 1000 MCF is equivalent to one (1) million cubic feet.

[c] Gas is used in 30% of TVA's gas turbines when available and economic. TVA does not predict natural gas use in combustion turbines in the long range planning process.

PLANNED GENERATING UNIT CHANGES

This section of the report tabulates the planned NERC generating unit additions, retirements, and oil to coal conversions over the January 1, 1988 to December 31, 1997 period. Table 29 summarizes the capacity changes for NERC-U.S., NERC-Canada, NERC-Mexico, and NERC-Total. Planned generating capacity additions for NERC over the forecast period total 90,500 MW. Of this total, about 70,400 MW or about 77.8% will be utility-owned capacity and the other 22.2% will be non-utility generators. Planned retirements during this period will approach 7,300 MW, and oil-to-coal conversions are estimated to be about 300 MW. Figure 11 shows the projected capacity additions by fuel for NERC-U.S., NERC-Canada, and NERC-Mexico.

Table 30 tabulates the total projected (utility and non-utility) generating unit additions by NERC Region and subregion. Similarly, Tables 31 and 38 show utility planned additions by fuel and by NERC Region and subregion. A listing of the projected (utility and non-utility) generating unit additions by in-service date is included in Appendix D. Similar listings of utility additions by in-service date and by fuel are included in Appendixes E through K. Appendix M provides detail on units identified by utilities as jointly-owned units.

The estimated 20,100 MW of non-utility generator capacity additions of Table 29 are shown by NERC Region and subregion in Table 39. Details on the specific non-utility generating units comprising Table 39 are included in Appendix L.

Additional information on the 7,300 MW of planned unit retirements is summarized in Table 40 and listed by in-service date in Appendix N.

The specific codes used throughout the generating unit Appendixes D through N for unit type, fuel type, ownership, and construction status are listed on the next-to-last page of the report. All unit sizes are summer MW ratings. States and provinces in which the units are located are denoted by their two-character postal codes. Utility system abbreviations follow the conventions used in the Regional IE-411 reports to the U.S. Department of Energy (DOE). Utility system abbreviations are not defined.

TABLE 29 -- GENERATING UNIT ADDITIONS, RETIREMENTS, AND CONVERSIONS (1988-1997)

	NERC-U.S.		NERC-Canada		NERC-Mexico		NERC-Total	
Type	Thousands of MW	% of Total	Thousands of MW	% of Total	Thousands of MW	% of Total	Thousands of MW	% of Total
Nuclear	18.2[a,b]	24.8	3.5	21.5	0.0	0.0	21.7[a,b]	24.0
Coal	15.4	21.0	4.1	25.1	0.0	0.0	19.5	21.5
Hydro	1.7	2.3	8.0	48.7	0.0	0.0	9.7	10.7
Oil/Gas	13.6	18.5	0.5	3.0	0.6	85.3	14.7	16.2
Pumped Storage	2.1	2.9	0.0	0.0	0.0	0.0	2.1	2.4
Other (Utility)	2.6	3.5	0.0	0.0	0.1	14.7	2.7	3.0
Non-Utility Generators	19.8	27.0	0.3	1.7	0.0	0.0	20.1	22.2
Additions	73.4	100.0	16.4	100.0	0.7	100.0	90.5	100.0
Retirements	7.1		0.2		0.0		7.3	
Conversions (Oil to Coal)	0.3		0.0		0.0		0.3	

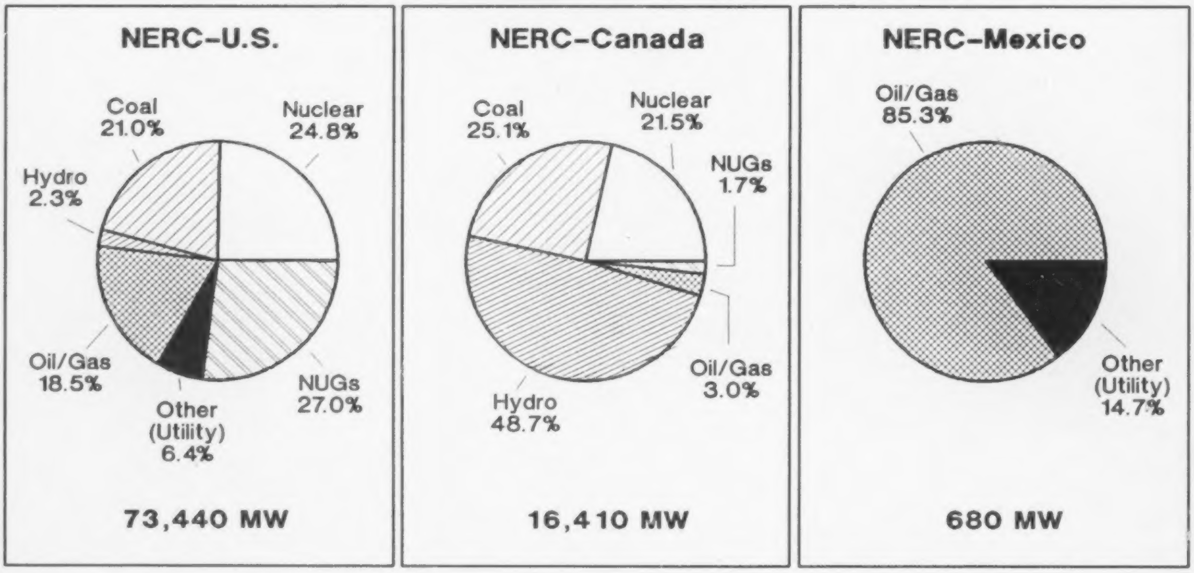
Note: Figures are rounded. Percentages are based on complete data.

[a] Includes the Shoreham 809 MW nuclear unit.

[b] Perry 2 and Washington Nuclear Project units, WNP 1 and 3, are not included.

PROJECTED GENERATING UNIT ADDITIONS
(1988-1997 Forecast)

Figure 11



North American
Electric
Reliability
Council

TABLE 30
TOTAL GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

					PROJECTED						1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	1120	1345	1454	2021	229	170	201	496	311	195	7542
ERCOT	2362	2055	1864	70	844	305	735	410	1945	1848	12438
MAAC	521	662	1635	970	1323	200	365	456	795	250	7177
MAIN	1096	0	28	0	150	78	110	75	12	75	1624
CMNWLTH EDISON	1090	0	0	0	0	0	0	0	0	0	1090
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	6	0	28	0	150	78	110	75	12	75	534
MAPP	23	71	40	0	0	25	50	150	80	400	839
NPCC	1558	2877	1406	870	71	223	333	87	364	15	7804
NEW YORK	1148	1373	951	576	33	223	233	70	364	15	4986
NEPOOL	410	1504	455	294	38	0	100	17	0	0	2818
SERC	1219	3018	2646	1952	2388	1594	2904	1544	3899	568	21732
FLORIDA	912	187	295	53	133	1184	1059	1195	1305	98	6421
SOUTHERN	1	2553	150	826	0	70	110	0	848	125	4683
TVA	0	0	1170	0	1170	0	1212	0	1212	0	4764
VACAR	306	278	1031	1073	1085	340	523	349	534	345	5864
SPP	51	242	0	318	0	105	10	140	1077	353	2296
SOUTHEAST	17	35	0	0	0	0	10	0	0	0	62
WEST CENTRAL	0	125	0	300	0	0	0	0	340	170	935
NORTHERN	34	82	0	18	0	105	0	140	737	183	1299
WSCC	3312	2431	1550	644	346	570	570	603	1151	812	11989
NW POOL	164	137	7	7	57	46	15	6	10	0	449
ROCKY MT-AREA	67	70	172	141	15	69	0	59	485	435	1513
ARIZ-N.MEX	1308	374	0	2	0	0	0	8	132	152	1976
CALIF-SO.NEV	1773	1850	1371	494	274	455	555	530	524	225	8051
TOTAL(U.S.)	11262	12701	10623	6845	5351	3270	5278	3961	9634	4516	73441[a]
NERC-CANADA											
MAPP	0	0	332	646	640	0	0	92	0	406	2116
NPCC	0	2792	75	1031	1849	1518	396	2858	670	530	11719
NEW BRUNSWICK	0	0	0	0	0	400	0	200	0	0	600
NOVA SCOTIA	0	0	0	150	0	150	300	150	0	0	750
ONTARIO	0	1812	75	881	901	20	96	311	210	30	4336
QUEBEC	0	980	0	0	948	948	0	2197	460	500	6033
WSCC	0	502	366	386	0	0	162	360	441	360	2577
TOTAL(CANADA)	0	3294	773	2063	2489	1518	558	3310	1111	1296	16412[a]
NERC-MEXICO											
WSCC	0	0	290	0	50	50	145	0	0	145	680
TOTAL(MEXICO)	0	0	290	0	50	50	145	0	0	145	680[a]
NERC-TOTAL	11262	15995	11686	8908	7890	4838	5981	7271	10745	5957	90533[a]

---

[a] Totals may not add due to rounding.

North American
Electric
Reliability
Council

TABLE 31
NUCLEAR GENERATING UNIT ADDITIONS (UTILITY-OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	1093	0	0	0	0	0	0	0	0	0	1093
ERCOT	1250	2400	1150	0	0	0	0	0	0	0	4800
MAAC	0	0	1055	0	0	0	0	0	0	0	1055
MAIN	1090	0	0	0	0	0	0	0	0	0	1090
CMNWLTH EDISON	1090	0	0	0	0	0	0	0	0	0	1090
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	1080	1959	0	0	0	0	0	0	0	0	3039
NEW YORK	1080	809	0	0	0	0	0	0	0	0	1889
NEPOOL	0	1150	0	0	0	0	0	0	0	0	1150
SERC	0	1086	1170	0	1170	0	1212	0	1212	0	5850
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	1086	0	0	0	0	0	0	0	0	1086
TVA	0	0	1170	0	1170	0	1212	0	1212	0	4764
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	1270	0	0	0	0	0	0	0	0	0	1270
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	1270	0	0	0	0	0	0	0	0	0	1270
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	5783	5445	3375	0	1170	0	1212	0	1212	0	18197[a]
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	1762	0	881	881	0	0	0	0	0	3524
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	1762	0	881	881	0	0	0	0	0	3524
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	1762	0	881	881	0	0	0	0	0	3524[a]
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	5783	7207	3375	881	2051	0	1212	0	1212	0	21721[a]

---

[a] Totals may not add due to rounding.

North American
Electric
Reliability
Council

TABLE 32
COAL-FIRED GENERATING UNIT ADDITIONS (UTILITY-OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	0	1300	0	1795	0	0	0	0	0	0	3095
ERCOT	327	0	0	0	498	0	750	750	1045	1848	5218
MAAC	0	0	0	0	640	0	0	0	0	0	640
MAIN	0	0	13	0	0	0	60	0	0	0	73
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	13	0	0	0	60	0	0	0	73
MAPP	0	71	0	0	0	0	0	0	0	400	471
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	624	1467	0	666	0	0	0	766	766	125	4414
FLORIDA	624	0	0	0	0	0	0	766	766	0	2156
SOUTHERN	0	1467	0	666	0	0	0	0	0	125	2258
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	18	0	75	0	0	0	0	93
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	18	0	75	0	0	0	0	93
WSCC	0	360	0	0	0	0	0	0	485	550	1395
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	485	425	910
ARIZ-N.MEX	0	360	0	0	0	0	0	0	0	0	360
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	125	125
TOTAL(U.S.)	951	3198	13	2479	1138	75	810	1516	2296	2923	15399[a]
NERC-CANADA											
MAPP	0	0	0	0	280	0	0	0	0	276	556
NPCC	0	0	0	150	0	550	300	350	0	0	1350
NEW BRUNSWICK	0	0	0	0	0	400	0	200	0	0	600
NOVA SCOTIA	0	0	0	150	0	150	300	150	0	0	750
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	386	366	386	0	0	0	360	360	360	2218
TOTAL(CANADA)	0	386	366	536	280	550	300	710	360	636	4124[a]
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	951	3584	379	3015	1418	625	1110	2226	2656	3559	19523[a]

---

[a] Totals may not add due to rounding.

TABLE 33
HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS (UTILITY-OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	2	0	0	0	0	0	0	0	0	0	2
MAIN	6	0	0	0	0	3	0	0	0	0	9
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	6	0	0	0	0	3	0	0	0	0	9
MAPP	6	0	0	0	0	0	0	0	0	0	6
NPCC	13	0	37	53	6	8	0	17	330	0	464
NEW YORK	0	0	12	50	0	8	0	0	330	0	400
NEPOOL	13	0	25	3	6	0	0	17	0	0	64
SERC	0	0	0	50	0	0	0	0	0	0	50
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	50	0	0	0	0	0	0	50
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	17	25	0	0	0	0	10	0	0	0	52
SOUTHEAST	17	0	0	0	0	0	10	0	0	0	27
WEST CENTRAL	0	25	0	0	0	0	0	0	0	0	25
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	46	54	221	200	163	107	54	41	59	175	1120
NW POOL	0	3	0	0	31	40	15	6	10	0	105
ROCKY MT-AREA	0	0	1	21	15	0	0	0	0	0	37
ARIZ-N.MEX	38	14	0	0	0	0	0	0	45	150	247
CALIF-SO.NEV	8	37	220	179	117	67	39	35	4	25	731
TOTAL(U.S.)	90	79	258	303	169	118	64	58	389	175	1703[a]
NERC-CANADA											
MAPP	0	0	240	600	360	0	0	92	0	130	1422
NPCC	0	980	0	0	948	948	66	2478	640	500	6560
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	66	281	180	0	527
QUEBEC	0	980	0	0	948	948	0	2197	460	500	6033
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	980	240	600	1308	948	66	2570	640	630	7982[a]
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	90	1059	498	903	1477	1066	130	2628	1029	805	9685[a]

---

[a] Totals may not add due to rounding.

North American
Electric
Reliability
Council

TABLE 34
PUMPED STORAGE GENERATING UNIT ADDITIONS (UTILITY-OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	300	500	500	0	0	0	848	0	2148
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	150	0	0	0	0	0	848	0	998
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	150	500	500	0	0	0	0	0	1150
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	0	0	300	500	500	0	0	0	848	0	2148[a]
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	0	0	300	500	500	0	0	0	848	0	2148[a]

---

[a] Totals may not add due to rounding.

North American
Electric
Reliability
Council

TABLE 35
OIL-FIRED GENERATING UNIT ADDITIONS (UTILITY-OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	13	0	70	70	70	0	125	125	250	125	848
MAIN	0	0	15	0	0	0	0	0	0	0	15
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	15	0	0	0	0	0	0	0	15
MAPP	0	0	0	0	0	0	0	0	80	0	80
NPCC	17	238	0	0	0	0	0	0	0	0	255
NEW YORK	0	238	0	0	0	0	0	0	0	0	238
NEPOOL	17	0	0	0	0	0	0	0	0	0	17
SERC	0	20	0	0	150	465	417	385	615	75	2127
FLORIDA	0	20	0	0	0	465	267	385	465	75	1677
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	150	0	150	0	150	0	450
SPP	0	15	0	0	0	0	0	65	0	0	80
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	15	0	0	0	0	0	65	0	0	80
WSCC	0	0	0	0	0	0	0	70	70	0	140
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	70	70	0	140
TOTAL(U.S.)	30	273	85	70	220	465	542	645	1015	200	3545[a]
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	290	0	0	0	145	0	0	145	580
TOTAL(MEXICO)	0	0	290	0	0	0	145	0	0	145	580[a]
NERC-TOTAL	30	273	375	70	220	465	687	645	1015	345	4125[a]

---

[a] Totals may not add due to rounding.

TABLE 36
GAS-FIRED GENERATING UNIT ADDITIONS (UTILITY-OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	140	120	200	200	240	135	1035
ERCOT	785	0	460	70	210	130	210	0	530	0	2395
MAAC	0	204	90	60	200	0	200	300	400	0	1454
MAIN	0	0	0	0	150	75	50	75	0	75	425
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	150	75	50	75	0	75	425
MAPP	0	0	0	0	0	0	50	150	0	0	200
NPCC	0	0	0	0	0	0	100	0	0	0	100
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	100	0	0	0	100
SERC	23	70	127	110	137	520	880	0	0	0	1867
FLORIDA	23	70	0	0	10	450	770	0	0	0	1323
SOUTHERN	0	0	0	110	0	70	110	0	0	0	290
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	127	0	127	0	0	0	0	0	254
SPP	34	92	0	0	0	0	0	75	977	353	1531
SOUTHEAST	0	25	0	0	0	0	0	0	0	0	25
WEST CENTRAL	0	0	0	0	0	0	0	0	240	170	410
NORTHERN	34	67	0	0	0	0	0	75	737	183	1096
WSCC	5	0	0	0	0	264	210	254	275	0	1008
NW POOL	5	0	0	0	0	0	0	0	0	0	5
ROCKY MT-AREA	0	0	0	0	0	54	0	54	0	0	108
ARIZ-N.MEX	0	0	0	0	0	0	0	0	75	0	75
CALIF-SO.NEV	0	0	0	0	0	210	210	200	200	0	820
TOTAL(U.S.)	847	366	677	240	837	1109	1900	1054	2422	563	10014[a]
NERC-CANADA											
MAPP	0	0	92	46	0	0	0	0	0	0	138
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	116	0	0	0	0	162	0	81	0	359
TOTAL(CANADA)	0	116	92	46	0	0	162	0	81	0	497[a]
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	847	482	769	286	837	1109	2062	1054	2503	563	10511[a]

---

[a] Totals may not add due to rounding.

North American
Electric
Reliability
Council

TABLE 37
OIL- AND GAS-FIRED GENERATING UNIT ADDITIONS (UTILITY-OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	140	120	200	200	240	135	1035
ERCOT	785	0	460	70	210	130	210	0	530	0	2395
MAAC	13	204	160	130	270	0	325	425	650	125	2302
MAIN	0	0	15	0	150	75	50	75	0	75	440
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	15	0	150	75	50	75	0	75	440
MAPP	0	0	0	0	0	0	50	150	80	0	280
NPCC	17	238	0	0	0	0	100	0	0	0	355
NEW YORK	0	238	0	0	0	0	0	0	0	0	238
NEPOOL	17	0	0	0	0	0	100	0	0	0	117
SERC	23	90	127	110	287	985	1297	385	615	75	3994
FLORIDA	23	90	0	0	10	915	1037	385	465	75	3000
SOUTHERN	0	0	0	110	0	70	110	0	0	0	290
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	127	0	277	0	150	0	150	0	704
SPP	34	107	0	0	0	0	0	140	977	353	1611
SOUTHEAST	0	25	0	0	0	0	0	0	0	0	25
WEST CENTRAL	0	0	0	0	0	0	0	0	240	170	410
NORTHERN	34	82	0	0	0	0	0	140	737	183	1176
WSCC	5	0	0	0	0	264	210	324	345	0	1148
NW POOL	5	0	0	0	0	0	0	0	0	0	5
ROCKY MT-AREA	0	0	0	0	0	54	0	54	0	0	108
ARIZ-N.MEX	0	0	0	0	0	0	0	0	75	0	75
CALIF-SO.NEV	0	0	0	0	0	210	210	270	270	0	960
TOTAL(U.S.)	877	639	762	310	1057	1574	2442	1699	3437	763	13558[a]
NERC-CANADA											
MAPP	0	0	92	46	0	0	0	0	0	0	138
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	116	0	0	0	0	162	0	81	0	359
TOTAL(CANADA)	0	116	92	46	0	0	162	0	81	0	497[a]
NERC-MEXICO											
WSCC	0	0	290	0	0	0	145	0	0	145	580
TOTAL(MEXICO)	0	0	290	0	0	0	145	0	0	145	580[a]
NERC-TOTAL	877	755	1144	356	1057	1574	2749	1699	3518	908	14635[a]

---

[a] Totals may not add due to rounding.

TABLE 38
OTHER[a] GENERATING UNIT ADDITIONS (UTILITY-OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	60	60	60	180
ERCOT	0	0	20	0	36	0	0	0	0	0	56
MAAC	0	0	0	15	112	40	0	31	100	15	313
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	8	0	58	0	126	0	68	0	68	0	328
FLORIDA	8	0	0	0	0	0	0	0	0	0	8
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	58	0	126	0	68	0	68	0	320
SPP	0	10	0	0	0	30	0	0	0	0	40
SOUTHEAST	0	10	0	0	0	0	0	0	0	0	10
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	30	0	0	0	0	30
WSCC	122	44	183	193	150	150	290	208	260	75	1675
NW POOL	0	43	0	0	0	0	0	0	0	0	43
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	2	0	0	0	8	10	0	20
CALIF-SO.NEV	122	1	183	191	150	150	290	200	250	75	1612
TOTAL(U.S.)	130	54	261	208	424	220	358	299	488	150	2592[b]
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	50	50	0	0	0	0	100
TOTAL(MEXICO)	0	0	0	0	50	50	0	0	0	0	100[b]
NERC-TOTAL	130	54	261	208	474	270	358	299	488	150	2692[b]

---

[a] Includes utility-owned capacity other then nuclear, coal-, oil-, and gas-fired, conventional hydro, and pumped star storage units.

[b] Totals may not add due to rounding.

North American
Electric
Reliability
Council

TABLE 39
NON-UTILITY GENERATOR (NUG) ADDITIONS[a] - SUMMER - MW
(January 1, 1988 - December 31, 1997)

		PROJECTED									1988-1997
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
NERC-U.S.											
ECAR	27	45	1454	226	89	50	1	236	11	0	2139
ERCOT	0	-345	234	0	100	175	-225	-340	370	0	-31
MAAC	506	458	420	825	301	160	40	0	45	110	2865
MAIN	0	0	0	0	0	0	0	0	12	0	12
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	12	0	12
MAPP	17	0	40	0	0	25	0	0	0	0	82
NPCC	448	680	1369	818	65	215	233	70	34	15	3947
NEW YORK	68	326	939	526	33	215	233	70	34	15	2459
NEPOOL	380	354	430	292	32	0	0	0	0	0	1488
SERC	565	375	991	626	305	609	327	393	390	368	4949
FLORIDA	258	97	295	53	123	269	22	44	74	23	1258
SOUTHERN	1	0	0	0	0	0	0	0	0	0	1
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	306	278	696	573	182	340	305	349	316	345	3690
SPP	0	100	0	300	0	0	0	0	100	0	500
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	100	0	300	0	0	0	0	100	0	500
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	1869	1973	1146	251	33	49	16	30	2	12	5381
NW POOL	159	91	7	7	26	6	0	0	0	0	296
ROCKY MT-AREA	67	70	171	120	0	15	0	5	0	10	458
ARIZ-N.MEX	0	0	0	0	0	0	0	0	2	2	4
CALIF-SO.NEV	1643	1812	968	124	7	28	16	25	0	0	4623
TOTAL(U.S.)	3432	3286	5654	3046	893	1283	392	389	964	505	19843[b]
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	50	75	0	20	20	30	30	30	30	285
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	50	75	0	20	20	30	30	30	30	285
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	50	75	0	20	20	30	30	30	30	285[b]
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	3432	3336	5729	3046	913	1303	422	419	994	535	20128[b]

---

[a] Non-utility generating capacity includes the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity or both to electric utilities and which are expected to be available to the electric utility system at the time of system peak demand.

[b] Totals may not add due to rounding.

North American
Electric
Reliability
Council

TABLE 40
GENERATING UNIT RETIREMENTS (UTILITY AND NON-UTILITY OWNED) - SUMMER - MW
(January 1, 1988 - December 31, 1997)

	PROJECTED										
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1988-1997 TOTAL
NERC-U.S.											
ECAR	0	3	369	60	80	44	0	92	0	165	813
ERCOT	0	0	0	0	0	0	260	160	123	131	674
MAAC	51	0	604	3	0	169	2	0	0	2	830
MAIN	52	0	231	190	0	0	0	100	187	550	1310
CMNWLTH EDISON	0	0	0	0	0	0	0	100	187	550	837
EAST MISSOURI	7	0	0	0	0	0	0	0	0	0	7
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	45	0	231	190	0	0	0	0	0	0	466
MAPP	74	0	0	0	18	0	0	5	1	0	98
NPCC	14	80	0	34	118	201	0	0	0	35	482
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	14	80	0	34	118	201	0	0	0	35	482
SERC	45	0	64	5	0	43	51	7	36	0	251
FLORIDA	0	0	3	5	0	43	31	7	20	0	109
SOUTHERN	45	0	61	0	0	0	20	0	16	0	142
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	20	0	89	139	59	478	122	125	0	113	1145
SOUTHEAST	0	0	89	139	59	406	122	125	0	113	1053
WEST CENTRAL	0	0	0	0	0	40	0	0	0	0	40
NORTHERN	20	0	0	0	0	32	0	0	0	0	52
WSCC	87	0	0	230	0	990	148	8	0	0	1463
NW POOL	0	0	0	0	0	850	0	0	0	0	850
ROCKY MT-AREA	0	0	0	230	0	0	8	8	0	0	246
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	87	0	0	0	0	140	140	0	0	0	367
TOTAL(U.S.)	343	83	1357	661	275	1925	583	497	347	996	7065[a]
NERC-CANADA											
MAPP	0	0	0	0	61	0	0	0	0	0	61
NPCC	9	0	0	0	0	24	0	0	0	0	34
NEW BRUNSWICK	9	0	0	0	0	24	0	0	0	0	34
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	44	105	0	5	0	0	0	12	0	166
TOTAL(CANADA)	9	44	105	0	66	24	0	0	12	0	261[a]
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	352	127	1462	661	341	1949	583	497	359	996	7326[a]

---

[a] Totals may not add due to rounding.

TRANSMISSION

The planned high voltage (230 kV and above, alternating current (ac) and direct current (dc)) transmission line additions in NERC over the 1988-1997 period are estimated to total about 18,649 circuit miles. Figures 12 and 13 compare the current transmission forecast to the 1987, 1986, and 1985 ten-year forecasts. The predominant transmission line voltage to be added in NERC-U.S. in the next ten years will be 230 kV. In prior forecasts, the leading additions were 345 kV. In NERC-Canada, the predominant voltage of planned additions continues to be 230 kV as in recent forecasts. In NERC-Mexico, only 230 kV lines are planned over the 1988-1997 period.

As of December 31, 1987, the transmission systems in NERC, as shown in Table 41, were comprised of over 184,000 circuit miles of high voltage lines. The planned transmission additions by voltage for the NERC Regions and subregions over the next two 5-year periods (1988-1992 and 1993-1997) are shown in Tables 42 and 43, respectively.

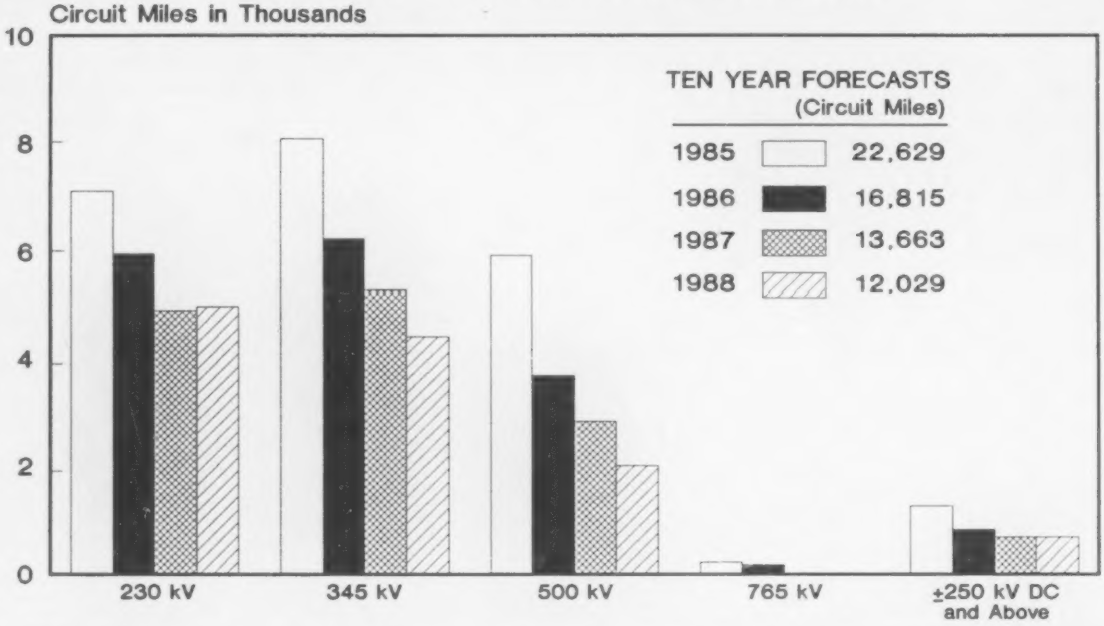
By the end of December 1997, the NERC high voltage transmission systems are expected to exceed 202,700 circuit miles. A breakdown of the 1997 total circuit miles by voltage for the NERC Regions and subregions is shown in Table 44. Finally, Table 45 summarizes the NERC existing transmission lines and planned transmission line additions over the 1987 to 1997 period.

The transmission data included in Figures 12 and 13 and Tables 41 through 45 were reported directly to NERC.

NERC–U.S.

Figure 12

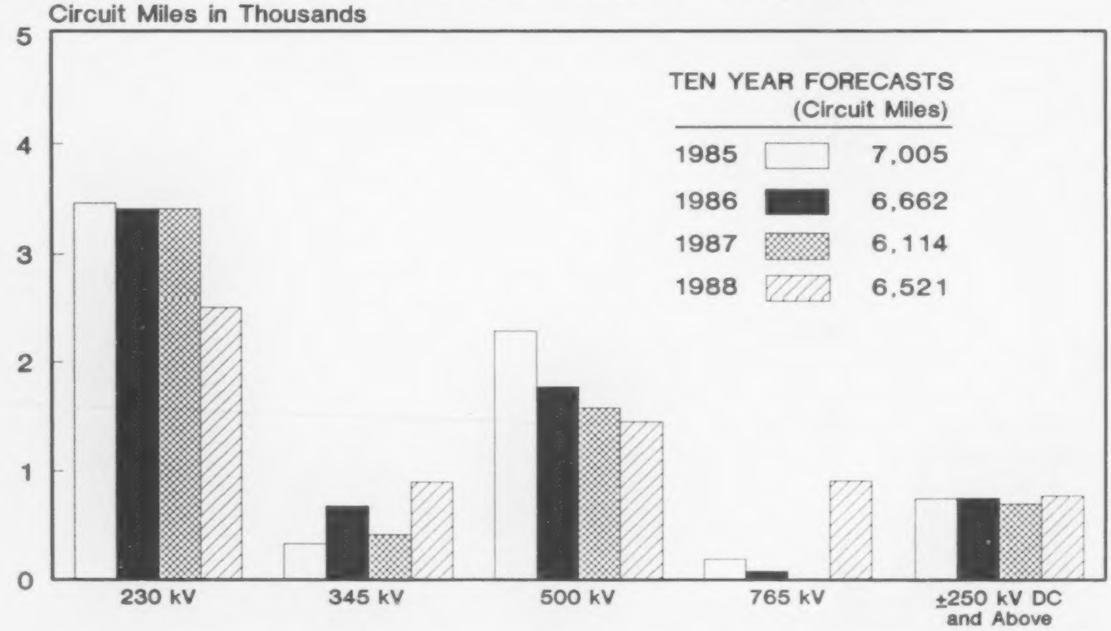
Planned Transmission Additions



NERC–Canada

Figure 13

Planned Transmission Additions



North American
Electric
Reliability
Council

TABLE 41
EXISTING TRANSMISSION (230-kV & Above) SYSTEMS - Circuit Miles
(12/31/87)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	1101	11789	852	2022	15764	0	0	0	0	0	15764
ERCOT	0	6871	0	0	6871	0	0	0	0	0	6871
MAAC	4722	170	1660	0	6552	0	0	0	0	0	6552
MAIN	241	5066	0	90	5397	0	0	0	0	0	5397
CMNWLTH EDISON	0	2357	0	90	2447	0	0	0	0	0	2447
EAST MISSOURI	90	974	0	0	1064	0	0	0	0	0	1064
S CENT ILLINOIS	48	789	0	0	837	0	0	0	0	0	837
WIS-UPPER MICH	103	946	0	0	1049	0	0	0	0	0	1049
MAPP	7203	5083	640	0	12926	465	436	0	0	901	13827
NPCC	1534	4132	5	316	5987	0	0	59	0	59	6046
NEW YORK	1090	2443	5	316	3854	0	0	0	0	0	3854
NEPOOL	444	1689	0	0	2133	0	0	59	0	59	2192
SERC	19890	2	7007	0	26899	0	0	0	0	0	26899
FLORIDA	4518	0	1161	0	5679	0	0	0	0	0	5679
SOUTHERN	6641	0	1735	0	8376	0	0	0	0	0	8376
TVA	30	2	2260	0	2292	0	0	0	0	0	2292
VACAR	8701	0	1851	0	10552	0	0	0	0	0	10552
SPP	4073	4533	2079	0	10685	0	0	0	0	0	10685
SOUTHEAST	2076	98	1977	0	4151	0	0	0	0	0	4151
WEST CENTRAL	1419	2270	47	0	3736	0	0	0	0	0	3736
NORTHERN	578	2165	55	0	2798	0	0	0	0	0	2798
WSCC	30942	9034[a]	11036	0	51012	0	0	0	1333	1333	52345
NW POOL	12683	3906	5670	0	22259	0	0	0	264	264	22523
ROCKY MT-AREA	3889	912	0	0	4801	0	0	0	0	0	4801
ARIZ-N.MEX	2277	3720	1626	0	7623	0	0	0	0	0	7623
CALIF-SO.NEV	12093	496	3740	0	16329	0	0	0	1069	1069	17398
TOTAL(U.S.)	69706	46680	23279	2428	142093	465	436	59	1333	2293	144386
NERC-CANADA											
MAPP	3843	0	130	0	3973	0	0	1139	0	1139	5112
NPCC	11880	4889	1388	6372	24529	0	0	48	0	48	24577
NEW BRUNSWICK	389	770	0	0	1159	0	0	0	0	0	1159
NOVA SCOTIA	715	107	0	0	822	0	0	0	0	0	822
ONTARIO	8398	4	1388	0	9790	0	0	0	0	0	9790
QUEBEC	2378	4008[b]	0	6372[c]	12758	0	0	48	0	48	12806
WSCC	5835	266[a]	3453	0	9554	47	0	0	0	47	9601
TOTAL(CANADA)	21558	5155	4971	6372	38056	47	0	1187	0	1234	39290
NERC-MEXICO											
WSCC	400	0	0	0	400	0	0	0	0	0	400
TOTAL(MEXICO)	400	0	0	0	400	0	0	0	0	0	400
NERC-TOTAL	91664	51835	28250	8800	180549	512	436	1246	1333	3527	184076

---

[a] Where appropriate, includes 287 kV and 360 kV lines.
[b] 315 kV lines.
[c] 735 kV lines.

North American
Electric
Reliability
Council

TABLE 42
PLANNED TRANSMISSION ADDITIONS BY VOLTAGE (230-kV & Above)-Circuit Miles
(1988-1992)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	19	22	0	0	41	0	0	0	0	0	41
ERCOT	0	390	0	0	390	0	0	0	0	0	390
MAAC	285	0	16	0	301	0	0	0	0	0	301
MAIN	0	219	0	0	219	0	0	0	0	0	219
CMNWLTH EDISON	0	150	0	0	150	0	0	0	0	0	150
EAST MISSOURI	0	9	0	0	9	0	0	0	0	0	9
S CENT ILLINOIS	0	59	0	0	59	0	0	0	0	0	59
WIS-UPPER MICH	0	1	0	0	1	0	0	0	0	0	1
MAPP	212	126	0	0	338	0	0	0	0	0	338
NPCC	0	424	0	0	424	92	0	133	0	225	649
NEW YORK	0	240	0	0	240	0	0	0	0	0	240
NEPOOL	0	184	0	0	184	92	0	133	0	225	409
SERC	959	0	422	0	1381	0	0	0	0	0	1381
FLORIDA	198	0	83	0	281	0	0	0	0	0	281
SOUTHERN	229	0	24	0	253	0	0	0	0	0	253
TVA	0	0	141	0	141	0	0	0	0	0	141
VACAR	532	0	174	0	706	0	0	0	0	0	706
SPP	599	250	45	0	894	0	0	0	0	0	894
SOUTHEAST	489	0	45	0	534	0	0	0	0	0	534
WEST CENTRAL	110	141	0	0	251	0	0	0	0	0	251
NORTHERN	0	109	0	0	109	0	0	0	0	0	109
WSCC	1203	927[a]	811	0	2941	0	0	0	0	0	2941
NW POOL	198	202	148	0	548	0	0	0	0	0	548
ROCKY MT-AREA	363	113	0	0	476	0	0	0	0	0	476
ARIZ-N.MEX	441	443	59	0	943	0	0	0	0	0	943
CALIF-SO.NEV	201	169	604	0	974	0	0	0	0	0	974
TOTAL(U.S.)	3277	2358	1294	0	6929	92	0	133	0	225	7154
NERC-CANADA											
MAPP	886	0	0	0	886	0	0	0	0	0	886
NPCC	193	174	679	5	1051	0	0	768	0	768	1819
NEW BRUNSWICK	0	55	0	0	55	0	0	0	0	0	55
NOVA SCOTIA	0	97	0	0	97	0	0	0	0	0	97
ONTARIO	187	0	679	0	866	0	0	0	0	0	866
QUEBEC	6	22[b]	0	5[c]	33	0	0	768	0	768	801
WSCC	389	138[a]	0	0	527	0	0	0	0	0	527
TOTAL(CANADA)	1468	312	679	5	2464	0	0	768	0	768	3232
NERC-MEXICO											
WSCC	31	0	0	0	31	0	0	0	0	0	31
TOTAL(MEXICO)	31	0	0	0	31	0	0	0	0	0	31
NERC-TOTAL	4776	2670	1973	5	9424	92	0	901	0	993	10417

---

[a] Where appropriate, includes 287 kV and 360 kV lines.
[b] 315 kV lines.
[c] 735 kV lines.

North American
Electric
Reliability
Council

TABLE 43
PLANNED TRANSMISSION ADDITIONS BY VOLTAGE (230-kV & Above)-Circuit Miles
(1993-1997)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	16	192	106	0	314	0	0	0	0	0	314
ERCOT	0	541	0	0	541	0	0	0	0	0	541
MAAC	119	0	95	0	214	0	0	0	0	0	214
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	-39	516	0	0	477	0	0	0	0	0	477
NPCC	42	88	0	0	130	0	0	0	0	0	130
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	42	88	0	0	130	0	0	0	0	0	130
SERC	702	0	238	0	940	0	0	0	0	0	940
FLORIDA	125	0	147	0	272	0	0	0	0	0	272
SOUTHERN	185	0	55	0	240	0	0	0	0	0	240
TVA	0	0	36	0	36	0	0	0	0	0	36
VACAR	392	0	0	0	392	0	0	0	0	0	392
SPP	213	139	242	0	594	0	0	0	0	0	594
SOUTHEAST	164	0	242	0	406	0	0	0	0	0	406
WEST CENTRAL	49	31	0	0	80	0	0	0	0	0	80
NORTHERN	0	108	0	0	108	0	0	0	0	0	108
WSCC	638	549[a]	23	0	1210	0	0	0	455	455	1665
NW POOL	588	19	22	0	629	0	0	0	0	0	629
ROCKY MT-AREA	-143	390	0	0	247	0	0	0	0	0	247
ARIZ-N.MEX	66	140	1	0	207	0	0	0	240	240	447
CALIF-SO.NEV	127	0	0	0	127	0	0	0	215	215	342
TOTAL(U.S.)	1691	2025	704	0	4420	0	0	0	455	455	4875
NERC-CANADA											
MAPP	214	0	0	0	214	0	0	0	0	0	214
NPCC	299	586	346	900	2131	0	0	0	0	0	2131
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	25	273	0	0	298	0	0	0	0	0	298
ONTARIO	274	0	346	0	620	0	0	0	0	0	620
QUEBEC	0	313[b]	0	900[c]	1213	0	0	0	0	0	1213
WSCC	520	0	424	0	944	0	0	0	0	0	944
TOTAL(CANADA)	1033	586	770	900	3289	0	0	0	0	0	3289
NERC-MEXICO											
WSCC	68	0	0	0	68	0	0	0	0	0	68
TOTAL(MEXICO)	68	0	0	0	68	0	0	0	0	0	68
NERC-TOTAL	2792	2611	1474	900	7777	0	0	0	455	455	8232

[a] Where appropriate, includes 287 kV and 360 kV lines.
[b] 315 kV lines.
[c] 735 kV lines.

North American
Electric
Reliability
Council

TABLE 44
EXISTING AND PLANNED TRANSMISSION (230-kV & Above) SYSTEMS-Circuit Miles
(12/31/97)

	AC VOLTAGE (kV)					DC VOLTAGE (kV)					AC & DC
	230	345	500	765	Subtotal	±250-300	±400	±450	±500	Subtotal	Total
NERC-U.S.											
ECAR	1136	12003	958	2022	16119	0	0	0	0	0	16119
ERCOT	0	7802	0	0	7802	0	0	0	0	0	7802
MAAC	5126	170	1771	0	7067	0	0	0	0	0	7067
MAIN	241	5285	0	90	5616	0	0	0	0	0	5616
CMNWLTH EDISON	0	2507	0	90	2597	0	0	0	0	0	2597
EAST MISSOURI	90	983	0	0	1073	0	0	0	0	0	1073
S CENT ILLINOIS	48	848	0	0	896	0	0	0	0	0	896
WIS-UPPER MICH	103	947	0	0	1050	0	0	0	0	0	1050
MAPP	7376	5725	640	0	13741	465	436	0	0	901	14642
NPCC	1576	4644	5	316	6541	92	0	192	0	284	6825
NEW YORK	1090	2683	5	316	4094	0	0	0	0	0	4094
NEPOOL	486	1961	0	0	2447	92	0	192	0	284	2731
SERC	21551	2	7667	0	29220	0	0	0	0	0	29220
FLORIDA	4841	0	1391	0	6232	0	0	0	0	0	6232
SOUTHERN	7055	0	1814	0	8869	0	0	0	0	0	8869
TVA	30	2	2437	0	2469	0	0	0	0	0	2469
VACAR	9625	0	2025	0	11650	0	0	0	0	0	11650
SPP	4885	4922	2366	0	12173	0	0	0	0	0	12173
SOUTHEAST	2729	98	2264	0	5091	0	0	0	0	0	5091
WEST CENTRAL	1578	2442	47	0	4067	0	0	0	0	0	4067
NORTHERN	578	2382	55	0	3015	0	0	0	0	0	3015
WSCC	32783	10510[a]	11870	0	55163	0	0	0	1788	1788	56951
NW POOL	13469	4127	5840	0	23436	0	0	0	264	264	23700
ROCKY MT-AREA	4109	1415	0	0	5524	0	0	0	0	0	5524
ARIZ-N.MEX	2784	4303	1686	0	8773	0	0	0	240	240	9013
CALIF-SO.NEV	12421	665	4344	0	17430	0	0	0	1284	1284	18714
TOTAL(U.S.)	74674	51063	25277	2428	153442	557	436	192	1788	2973	156415
NERC-CANADA											
MAPP	4943	0	130	0	5073	0	0	1139	0	1139	6212
NPCC	12372	5649	2413	7277	27711	0	0	816	0	816	28527
NEW BRUNSWICK	389	825	0	0	1214	0	0	0	0	0	1214
NOVA SCOTIA	740	477	0	0	1217	0	0	0	0	0	1217
ONTARIO	8859	4	2413	0	11276	0	0	0	0	0	11276
QUEBEC	2384	4343[b]	0	7277[c]	14004	0	0	816	0	816	14820
WSCC	6744	404[a]	3877	0	11025	47	0	0	0	47	11072
TOTAL(CANADA)	24059	6053	6420	7277	43809	47	0	1955	0	2002	45811
NERC-MEXICO											
WSCC	499	0	0	0	499	0	0	0	0	0	499
TOTAL(MEXICO)	499	0	0	0	499	0	0	0	0	0	499
NERC-TOTAL	99232	57116	31697	9705	197750	604	436	2147	1788	4975	202725

---

[a] Where appropriate, includes 287 kV and 360 kV lines.
[b] 315 kV lines.
[c] 735 kV lines.

North American
Electric
Reliability
Council

TABLE 45
EXISTING AND PLANNED TRANSMISSION (230-kV & Above) SYSTEMS-Circuit Miles
(1987-1997)

	EXISTING 12/31/87	ADDITIONS 1988-92	TOTAL 12/31/92	ADDITIONS 1993-97	TOTAL 12/31/97
NERC-U.S.					
ECAR	15764	41	15805	314	16119
ERCOT	6871	390	7261	541	7802
MAAC	6552	301	6853	214	7067
MAIN	5397	219	5616	0	5616
CMNWLTH EDISON	2447	150	2597	0	2597
EAST MISSOURI	1064	9	1073	0	1073
S CENT ILLINOIS	837	59	896	0	896
WIS-UPPER MICH	1049	1	1050	0	1050
MAPP	13827	338	14165	477	14642
NPCC	6046	649	6695	130	6825
NEW YORK	3854	240	4094	0	4094
NEPOOL	2192	409	2601	130	2731
SERC	26899	1381	28280	940	29220
FLORIDA	5679	281	5960	272	6232
SOUTHERN	8376	253	8629	240	8869
TVA	2292	141	2433	36	2469
VACAR	10552	706	11258	392	11650
SPP	10685	894	11579	594	12173
SOUTHEAST	4151	534	4685	406	5091
WEST CENTRAL	3736	251	3987	80	4067
NORTHERN	2798	109	2907	108	3015
WSCC	52345	2941	55286	1665	56951
NW POOL	22523	548	23071	629	23700
ROCKY MT-AREA	4801	476	5277	247	5524
ARIZ-N.MEX	7623	943	8566	447	9013
CALIF-SO.NEV	17398	974	18372	342	18714
TOTAL(U.S.)	144386	7154	151540	4875	156415
NERC-CANADA					
MAPP	5112	886	5998	214	6212
NPCC	24577	1819	26396	2131	28527
NEW BRUNSWICK	1159	55	1214	0	1214
NOVA SCOTIA	822	97	919	298	1217
ONTARIO	9790	866	10656	620	11276
QUEBEC	12806	801	13607	1213	14820
WSCC	9601	527	10128	944	11072
TOTAL(CANADA)	39290	3232	42522	3289	45811
NERC-MEXICO					
WSCC	400	31	431	68	499
TOTAL(MEXICO)	400	31	431	68	499
NERC-TOTAL	184076	10417	194493	8232	202725

APPENDIXES

APPENDIXES

A. INSTALLED GENERATING CAPACITY

B. ELECTRICAL ENERGY PRODUCTION

C. FOSSIL FUEL REQUIREMENTS FOR COAL, OIL, AND NATURAL GAS

D. GENERATING UNIT ADDITIONS

E. NUCLEAR GENERATING UNIT ADDITIONS

F. COAL-FIRED GENERATING UNIT ADDITIONS

G. HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS

H. PUMPED STORAGE GENERATING UNIT ADDITIONS

I. OIL-FIRED GENERATING UNIT ADDITIONS

J. GAS-FIRED GENERATING UNIT ADDITIONS

K. OTHER (UTILITY) GENERATING UNIT ADDITIONS

L. NON-UTILITY GENERATOR (NUG) ADDITIONS

M. JOINTLY-OWNED GENERATING UNIT ADDITIONS

N. GENERATING UNIT RETIREMENTS

APPENDIX A
ACTUAL AND PROJECTED COAL-FIRED GENERATING CAPACITY - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	80442	79364	79346	80852	82773	82751	82809	82824	82876	82881	82948
ERCOT	13064	13457	13578	13613	13613	14111	14111	14861	15611	15811	18104
MAAC	17144	17144	17150	17150	17000	17640	17640	17640	17640	17640	17640
MAIN	26912	27536	27540	27369	27199	27199	27214	27216	27216	27059	26872
CMNWLTH EDISON	6940	6940	6940	6940	6940	6940	6940	6940	6940	6840	6653
EAST MISSOURI	5588	5588	5588	5588	5588	5588	5588	5588	5588	5588	5588
S CENT ILLINOIS	8037	7850	7850	7850	7850	7850	7850	7850	7850	7793	7793
WIS-UPPER MICH	6347	7158	7162	6991	6821	6821	6836	6838	6838	6838	6838
MAPP	18301	20055	19856	19856	19890	19890	20148	20148	20148	20148	20595
NPCC	7566	7535	7535	7535	7535	7535	7535	7535	7535	7535	7535
NEW YORK	4808	4813	4813	4813	4813	4813	4813	4813	4813	4813	4813
NEPOOL	2758	2722	2722	2722	2722	2722	2722	2722	2722	2722	2722
SERC	67030	67065	69179	69118	69858	69858	70058	69838	69839	69882	70007
FLORIDA	7714	7714	8337	8337	8411	8411	8611	8411	8412	8455	8455
SOUTHERN	23238	23260	24738	24677	25343	25343	25343	25323	25323	25323	25448
TVA	15833	15833	15833	15833	15833	15833	15833	15833	15833	15833	15833
VACAR	20245	20258	20271	20271	20271	20271	20271	20271	20271	20271	20271
SPP	26498	26544	26541	26541	26559	26803	26878	26878	26878	26878	26885
SOUTHEAST	6294	6248	6245	6245	6245	6245	6245	6245	6245	6245	6245
WEST CENTRAL	9750	9819	9819	9819	9819	10063	10063	10063	10063	10063	10063
NORTHERN	10454	10477	10477	10477	10495	10495	10570	10570	10570	10570	10577
WSCC	28929[a]	28920	29403	29585	29738	29737	29738	29738	29806	30291	30841
NW POOL	11129	11145	11143	11141	11141	11141	11141	11141	11141	11141	11141
ROCKY MT-AREA	5606	5606	5731	5831	5841	5840	5841	5841	5841	6326	6751
ARIZ-N.MEX	6684	6839	7353	7633	7633	7633	7633	7633	7701	7701	7701
CALIF-SO.NEV	5506	5330	5176	4980	5123	5123	5123	5123	5123	5123	5248
TOTAL(U.S.)	285886	287620	290128	291619	294165	295524	296131	296678	297549	298125	301427
NERC-CANADA											
MAPP	1896	1791	1791	1791	1791	2010	2010	2010	2010	2010	2286
NPCC	11138	11405	11519	11519	11519	11669	11657	12207	12507	12857	12857
NEW BRUNSWICK	304	304	304	304	304	304	280	680	680	880	880
NOVA SCOTIA	880	1033	1033	1033	1033	1183	1183	1333	1633	1783	1783
ONTARIO	9954	10068	10182	10182	10182	10182	10194	10194	10194	10194	10194
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	4534	4534	4534	4920	5286	5672	5672	5672	5672	6032	6392
TOTAL(CANADA)	17568	17730	17844	18230	18596	19351	19339	19889	20189	20899	21535
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	303454	305350	307972	309849	312761	314875	315470	316567	317738	319024	322962

---

[a] Because of subregional peak demand diversities, the sum of individual subregional capacities at the time of the respective subregional peak demands may not equal the total WSCC-U.S. capacity.

APPENDIX A
ACTUAL AND PROJECTED NUCLEAR GENERATING CAPACITY - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	4599	7695	7695	7695	7695	7695	7741	7741	7741	7741	7741
ERCOT	0	1250	3606	4712	4712	4712	4712	4712	4712	4712	4712
MAAC	11566	11566	11576	11606	12661	12661	12661	12661	12661	12661	12661
MAIN	10598	14872	14869	14872	14872	14872	14872	14872	14872	14872	14872
CMNWLTH EDISON	7994	11294	11294	11294	11294	11294	11294	11294	11294	11294	11294
EAST MISSOURI	1109	1150	1150	1150	1150	1150	1150	1150	1150	1150	1150
S CENT ILLINOIS	0	933	930	933	933	933	933	933	933	933	933
WIS-UPPER MICH	1495	1495	1495	1495	1495	1495	1495	1495	1495	1495	1495
MAPP	3702	3687	3687	3687	3687	3687	3687	3687	3687	3687	3687
NPCC	9101	9488	10964	12114	12114	12114	12114	12114	12114	12114	12114
NEW YORK	3694	4774	5583	5583	5583	5583	5583	5583	5583	5583	5583
NEPOOL	5407	4714	5381	6531	6531	6531	6531	6531	6531	6531	6531
SERC	28069	28050	29135	30363	30363	31533	31533	32745	32745	33957	33957
FLORIDA	3740	3740	3740	3740	3740	3740	3740	3740	3740	3740	3740
SOUTHERN	4402	4383	5468	5468	5468	5468	5468	5468	5468	5468	5468
TVA[a]	5491	5491	5491	6661	6661	7831	7831	9043	9043	10255	10255
VACAR	14436	14436	14436	14494	14494	14494	14494	14494	14494	14494	14494
SPP	5794	5794	5794	5794	5819	5819	5819	5819	5819	5819	5819
SOUTHEAST	4734	4734	4734	4734	4734	4734	4734	4734	4734	4734	4734
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	1060	1060	1060	1060	1085	1085	1085	1085	1085	1085	1085
WSCC	11458[b]	11828	11828	11828	11598	11598	11598	11598	11598	11598	11598
NW POOL	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175	2175
ROCKY MT-AREA	230	230	230	230	0	0	0	0	0	0	0
ARIZ-N.MEX	1853	2780	2780	2780	2780	2780	2780	2780	2780	2780	2780
CALIF-SO.NEV	6643	6643	6643	6643	6643	6643	6643	6643	6643	6643	6643
TOTAL(U.S.)	84887	94230	99154	102671	103521	104691	104737	105949	105949	107161	107161
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	11826	11928	13745	13790	14671	15552	15552	15552	15552	15552	15552
NEW BRUNSWICK	635	635	635	635	635	635	635	635	635	635	635
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	10526	10628	12445	12490	13371	14252	14252	14252	14252	14252	14252
QUEBEC	665	665	665	665	665	665	665	665	665	665	665
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	11826	11928	13745	13790	14671	15552	15552	15552	15552	15552	15552
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	96713	106158	112899	116461	118192	120243	120289	121501	121501	122713	122713

---

[a] TVA's Brown Ferry and Sequoyah nuclear plants are presently (as of 1/1/88) idled pending NRC approval for restart. The net capability of these units is included in TVA's capacity.

[b] See Appendix A, page 1, footnote a.

APPENDIX A
ACTUAL AND PROJECTED HYDRO[a] GENERATING CAPACITY - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987[b]	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	618	618	618	618	618	618	618	618	618	618	618
ERCOT[c]	247	247	247	247	247	247	247	247	247	247	247
MAAC	1042	1044	1044	1044	1044	1044	1044	1044	1044	1044	1044
MAIN	563	578	578	578	578	578	581	581	581	581	581
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	331	331	331	331	331	331	331	331	331	331	331
S CENT ILLINOIS	2	2	2	2	2	2	2	2	2	2	2
WIS-UPPER MICH	230	245	245	245	245	245	248	248	248	248	248
MAPP	3092	2966	2963	2818	2707	2707	2707	2707	2707	2714	2714
NPCC	5373	5386	5378	5390	5465	5465	5473	5473	5473	5473	5803
NEW YORK[c]	4006	4001	3992	4004	4054	4054	4062	4062	4062	4062	4392
NEPOOL[c]	1367	1385	1386	1386	1411	1411	1411	1411	1411	1411	1411
SERC	12002	11915	11923	11923	11973	11973	11973	11973	11973	11973	11973
FLORIDA	46	46	54	54	54	54	54	54	54	54	54
SOUTHERN[c]	3891	3801	3801	3801	3851	3851	3851	3851	3851	3851	3851
TVA	4674	4674	4674	4674	4674	4674	4674	4674	4674	4674	4674
VACAR	3391	3394	3394	3394	3394	3394	3394	3394	3394	3394	3394
SPP	2445	2445	2487	2487	2603	2603	2603	2613	2613	2613	2613
SOUTHEAST	70	70	87	87	87	87	87	97	97	97	97
WEST CENTRAL	2359	2359	2384	2384	2500	2500	2500	2500	2500	2500	2500
NORTHERN	16	16	16	16	16	16	16	16	16	16	16
WSCC[d]	45016	41486	41772	42203	42208	42124	42319	42483	42533	42703	43240
NW POOL	33617	28769	28773	28773	28617	28349	28376	28411	28417	27216	28722
ROCKY MT-AREA	2353	2375	2378	2384	2412	2429	2433	2433	2433	2433	2433
ARIZ-N.MEX	661	743	862	841	826	847	946	1046	1046	1079	1229
CALIF-SO.NEV	8545	9561	9724	10172	10164	10467	10532	10560	10599	10733	10814
TOTAL(U.S.)	70398	66685	67010	67308	67443	67359	67565	67739	67789	67966	68833
NERC-CANADA											
MAPP	4409	4415	4415	4415	5135	5495	5615	5615	5707	5707	5707
NPCC	29269	29338	30132	30420	30429	30754	31778	32478	35016	35645	36274
NEW BRUNSWICK[c]	884	884	884	884	884	884	884	884	884	884	884
NOVA SCOTIA	396	396	396	396	396	396	396	396	396	396	396
ONTARIO	6166	6170	6170	6170	6170	6170	6170	6170	6443	6568	6697
QUEBEC[c]	21823	21888	22682	22970	22979	23304	24328	25028	27293	27797	28297
WSCC	11092	11135	11135	11135	11135	11135	11135	11135	11135	11135	11135
TOTAL(CANADA)	44770	44888	45682	45970	46699	47384	48528	49228	51858	52487	53116
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	115168	111573	112692	113278	114142	114743	116093	116967	119647	120453	121949

---

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.

[b] Data for actual year can be greater than for forecast years if median or average hydro conditions occurred.

[c] Average or median hydro conditions for projections.

[d] See Appendix A, page 1, footnote a.

North American
Electric
Reliability
Council

APPENDIX A
ACTUAL AND PROJECTED PUMPED STORAGE GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	3583	3582	3582	3582	3582	3582	3582	3582	3582	3582	3582
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	1280	1280	1280	1280	1280	1280	1280	1280	1280	1280	1280
MAIN	300	300	300	300	300	300	300	300	300	300	300
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	300	300	300	300	300	300	300	300	300	300	300
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	2594	2594	2594	2594	2594	2594	2594	2594	2594	2594	2594
NEW YORK	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
NEPOOL	1594	1594	1594	1594	1594	1594	1594	1594	1594	1594	1594
SERC	4412	4412	4412	4637	5362	5862	5862	5862	5862	6709	6709
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	498	498	498	573	648	648	648	648	648	1495	1495
TVA	1532	1532	1532	1532	1532	1532	1532	1532	1532	1532	1532
VACAR	2382	2382	2382	2532	3182	3682	3682	3682	3682	3682	3682
SPP	260	260	260	260	260	260	260	260	260	260	260
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	260	260	260	260	260	260	260	260	260	260	260
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC[a]	3496	3603	3689	3680	3710	3697	3711	3709	3708	3685	3684
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	266	266	368	368	368	368	368	368	368	368	368
ARIZ-N.MEX	137	137	137	137	137	137	137	137	137	137	137
CALIF-SO.NEV	3093	3088	3095	3097	3091	3092	3090	3089	3089	3090	3089
TOTAL(U.S.)	15925	16031	16117	16333	17088	17575	17589	17587	17586	18410	18409
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	15925	16031	16117	16333	17088	17575	17589	17587	17586	18410	18409

---

[a] See Appendix A, page 1, footnote a.

North American
Electric
Reliability
Council

APPENDIX A
ACTUAL AND PROJECTED GEOTHERMAL GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	1722	1783	1844	1854	1864	2004	2004	2004	2194	2244	2294
NW POOL	20	20	20	20	20	20	20	20	20	20	20
ROCKY MT-AREA	0	0	0	0	10	10	10	10	10	10	10
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	1702	1763	1824	1834	1834	1974	1974	1974	2164	2214	2264
TOTAL(U.S.)	1722	1783	1844	1854	1864	2004	2004	2004	2194	2244	2294
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	573	573	573	573	573	623	673	673	673	673	673
TOTAL(MEXICO)	573	573	573	573	573	623	673	673	673	673	673
NERC-TOTAL	2295	2356	2417	2427	2437	2627	2677	2677	2867	2917	2967

APPENDIX A
ACTUAL AND PROJECTED OIL AND GAS-FIRED GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	5929	5929	5926	5936	5668	5808	5928	6282	6732	6880	7150
ERCOT	31209	32389	32389	32849	32919	33093	33223	33173	33013	33392	33526
MAAC	17338	17279	17319	17663	17418	17688	17519	17642	17987	18536	19385
MAIN	6429	6318	6316	6326	6326	6476	6551	6551	6676	6676	6751
CMNWLTH EDISON	3738	3738	3738	3738	3738	3738	3738	3738	3738	3738	3738
EAST MISSOURI	860	853	853	853	853	853	853	853	853	853	853
S CENT ILLINOIS	862	806	804	806	806	806	806	806	806	806	806
WIS-UPPER MICH	969	921	921	929	929	1079	1154	1154	1279	1279	1354
MAPP	3396	3598	3594	3594	3658	3695	3695	3695	3891	3972	3971
NPCC	26971	27142	27366	27405	27372	27372	27069	27053	27053	27053	27032
NEW YORK	16770	16770	17008	17127	17127	17127	17127	17127	17127	17127	17127
NEPOOL	10201	10372	10358	10278	10245	10245	9942	9926	9926	9926	9905
SERC	26213	26366	26409	26902	27188	28179	29030	30839	31898	33148	33613
FLORIDA	17120	17310	17353	17661	17837	18427	19208	20691	21750	22799	23264
SOUTHERN	2565	2528	2528	2528	2638	2638	2708	2818	2818	2803	2803
TVA	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066	2066
VACAR	4462	4462	4462	4647	4647	5048	5048	5264	5264	5480	5480
SPP	30626	29843	29950	30290	30135	29718	29662	29552	30024	31065	31444
SOUTHEAST	16669	15940	15940	16255	16100	15927	15902	15832	16023	15925	15925
WEST CENTRAL	10286	10217	10227	10252	10252	10008	10008	9968	10042	10444	10614
NORTHERN	3671	3686	3783	3783	3783	3783	3752	3752	3959	4696	4905
WSCC[b]	32272	30403	30633	30743	30680	30791	31060	31363	32098	32551	32815
NW POOL	2269	2126	2126	2186	2195	2186	2186	2186	2186	2195	2186
ROCKY MT-AREA	904	909	909	909	909	909	963	955	1001	1001	1001
ARIZ-N.MEX	4850	4304	4304	4220	4391	4391	4506	4621	4720	4903	4903
CALIF-SO.NEV	24237	23073	23303	23437	23203	23314	23414	23610	24200	24470	24734
TOTAL(U.S.)	180383	179267	179902	181708	181364	182820	183737	186150	189372	193273	195687
NERC-CANADA											
MAPP	241	364	364	456	502	502	502	502	502	502	502
NPCC	5985	6016	6016	6016	6016	6016	6016	6016	6016	6016	6016
NEW BRUNSWICK	1371	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362
NOVA SCOTIA	539	539	539	539	539	539	539	539	539	539	539
ONTARIO	3010	3050	3050	3050	3050	3050	3050	3050	3050	3050	3050
QUEBEC	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065
WSCC	2268	2268	2361	2315	2208	2208	2203	2203	2377	2377	2451
TOTAL(CANADA)	8494	8648	8741	8787	8726	8726	8721	8721	8895	8895	8969
NERC-MEXICO											
WSCC	455	455	455	600	745	745	745	890	890	890	1035
TOTAL(MEXICO)	455	455	455	600	745	745	745	890	890	890	1035
NERC-TOTAL	189332	188370	189098	191095	190835	192291	193203	195761	199157	203058	205691

---

[a] Includes oil-, gas-, and dual fuel(oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.

[b] See Appendix A, page 1, footnote a.

APPENDIX A

ACTUAL AND PROJECTED OIL-FIRED GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	4409	4409	4406	4406	4253	4253	4253	4421	4671	4671	4806
ERCOT	40	40	40	40	40	40	40	40	40	40	40
MAAC	12447	12411	12411	12539	12172	12242	12073	12196	12341	12590	12713
MAIN	4538	4489	4489	4489	4489	4489	4489	4489	4489	4489	4489
CMNWLTH EDISON	3136	3136	3136	3136	3136	3136	3136	3136	3136	3136	3136
EAST MISSOURI	545	538	538	538	538	538	538	538	538	538	538
S CENT ILLINOIS	522	497	497	497	497	497	497	497	497	497	497
WIS-UPPER MICH	335	318	318	318	318	318	318	318	318	318	318
MAPP	2675	2755	2751	2751	2815	2853	2853	2853	3000	3081	3080
NPCC	14816	15009	15233	15272	15239	15239	14936	14936	14936	14936	14915
NEW YORK	7755	7755	7993	8112	8112	8112	8112	8112	8112	8112	8112
NEPOOL	7061	7254	7240	7160	7127	7127	6824	6824	6824	6824	6803
SERC	15776	15738	15758	15999	16180	16450	16514	17227	17469	17529	17604
FLORIDA	10595	10595	10615	10856	11037	11307	11371	12084	12326	12401	12476
SOUTHERN	1381	1343	1343	1343	1343	1343	1343	1343	1343	1328	1328
TVA	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464
VACAR	2336	2336	2336	2336	2336	2336	2336	2336	2336	2336	2336
SPP	1460	1477	1492	1492	1492	1492	1492	1452	1337	1337	1337
SOUTHEAST	221	221	221	221	221	221	221	221	221	221	221
WEST CENTRAL	132	132	132	132	132	132	132	92	92	92	92
NORTHERN	1107	1124	1139	1139	1139	1139	1139	1139	1024	1024	1024
WSCC	1501	1441	1441	1441	1441	1441	1441	1441	1511	1581	1581
NW POOL	346	277	277	277	277	277	277	277	277	277	277
ROCKY MT-AREA	407	412	412	412	412	412	412	412	412	412	412
ARIZ-N.MEX	151	151	151	151	151	151	151	151	151	151	151
CALIF-SO.NEV	597	601	601	601	601	601	601	601	671	741	741
TOTAL(U.S.)	57662	57769	58021	58429	58121	58499	58091	59055	59794	60254	60565
NERC-CANADA											
MAPP	22	22	22	22	22	22	22	22	22	22	22
NPCC	5397	5428	5428	5428	5428	5428	5428	5428	5428	5428	5428
NEW BRUNSWICK	1371	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362
NOVA SCOTIA	539	539	539	539	539	539	539	539	539	539	539
ONTARIO	2422	2462	2462	2462	2462	2462	2462	2462	2462	2462	2462
QUEBEC	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065	1065
WSCC	99	99	99	99	99	99	94	94	94	94	94
TOTAL(CANADA)	5518	5549	5549	5549	5549	5549	5544	5544	5544	5544	5544
NERC-MEXICO											
WSCC	286	286	286	431	576	576	576	721	721	721	866
TOTAL(MEXICO)	286	286	286	431	576	576	576	721	721	721	866
NERC-TOTAL	63466	63604	63856	64409	64246	64624	64211	65320	66059	66519	66975

---

[a] Includes oil-fired steam, combustion turbine (and diesel), and combined cycle units. Excludes dual fuel (oil/gas)-fired capacity.

North American
Electric
Reliability
Council

APPENDIX A
ACTUAL AND PROJECTED OIL-STEAM GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	2746	2746	2746	2746	2746	2746	2746	2944	3194	3194	3194
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	8016	8023	8023	8080	7634	7634	7468	7468	7468	7468	7468
MAIN	3328	3305	3305	3305	3305	3305	3305	3305	3305	3305	3305
CMNWLTH EDISON	2698	2698	2698	2698	2698	2698	2698	2698	2698	2698	2698
EAST MISSOURI	196	196	196	196	196	196	196	196	196	196	196
S CENT ILLINOIS	434	411	411	411	411	411	411	411	411	411	411
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	91	85	85	85	135	173	173	173	173	173	173
NPCC	12077	12258	12258	12351	12351	12351	12048	12048	12048	12048	12048
NEW YORK	5961	5961	5961	6080	6080	6080	6080	6080	6080	6080	6080
NEPOOL	6116	6297	6297	6271	6271	6271	5968	5968	5968	5968	5968
SERC	9492	9499	9499	9499	9499	9607	9671	9933	9983	9983	9983
FLORIDA	8240	8240	8240	8240	8240	8348	8412	8674	8724	8724	8724
SOUTHERN	231	238	238	238	238	238	238	238	238	238	238
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	1021	1021	1021	1021	1021	1021	1021	1021	1021	1021	1021
SPP	53	53	53	53	53	53	53	53	53	53	53
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	53	53	53	53	53	53	53	53	53	53	53
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	112	86	86	86	86	86	86	86	86	86	86
NW POOL	112	86	86	86	86	86	86	86	86	86	86
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	35915	36055	36055	36205	35809	35955	35550	36010	36310	36310	36310
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4541	4532	4532	4532	4532	4532	4532	4532	4532	4532	4532
NEW BRUNSWICK	1345	1336	1336	1336	1336	1336	1336	1336	1336	1336	1336
NOVA SCOTIA	334	334	334	334	334	334	334	334	334	334	334
ONTARIO	2232	2232	2232	2232	2232	2232	2232	2232	2232	2232	2232
QUEBEC	630	630	630	630	630	630	630	630	630	630	630
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	4541	4532	4532	4532	4532	4532	4532	4532	4532	4532	4532
NERC-MEXICO											
WSCC	286	286	286	431	576	576	576	721	721	721	866
TOTAL(MEXICO)	286	286	286	431	576	576	576	721	721	721	866
NERC-TOTAL	40742	40873	40873	41168	40917	41063	40658	41263	41563	41563	41708

APPENDIX A
ACTUAL AND PROJECTED OIL-COMBUSTION TURBINE GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1641	1641	1638	1638	1485	1485	1485	1455	1455	1455	1455
ERCOT	40	40	40	40	40	40	40	40	40	40	40
MAAC	4317	4274	4274	4345	4424	4494	4491	4614	4759	5008	5131
MAIN	1210	1184	1184	1184	1184	1184	1184	1184	1184	1184	1184
CMNWLTH EDISON	438	438	438	438	438	438	438	438	438	438	438
EAST MISSOURI	349	342	342	342	342	342	342	342	342	342	342
S CENT ILLINOIS	88	86	86	86	86	86	86	86	86	86	86
WIS-UPPER MICH	335	318	318	318	318	318	318	318	318	318	318
MAPP	2533	2619	2615	2615	2629	2629	2629	2629	2776	2857	2856
NPCC	2739	2751	2975	2921	2888	2888	2888	2888	2888	2888	2867
NEW YORK	1794	1794	2032	2032	2032	2032	2032	2032	2032	2032	2032
NEPOOL	945	957	943	889	856	856	856	856	856	856	835
SERC	6270	6225	6245	6486	6667	6829	6829	7280	7280	7340	7415
FLORIDA	2341	2341	2361	2602	2783	2945	2945	3396	3396	3471	3546
SOUTHERN	1150	1105	1105	1105	1105	1105	1105	1105	1105	1090	1090
TVA	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464	1464
VACAR	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315
SPP	1407	1424	1439	1439	1439	1439	1439	1399	1284	1284	1284
SOUTHEAST	221	221	221	221	221	221	221	221	221	221	221
WEST CENTRAL	79	79	79	79	79	79	79	39	39	39	39
NORTHERN	1107	1124	1139	1139	1139	1139	1139	1139	1024	1024	1024
WSCC	1389	1355	1355	1355	1355	1355	1355	1355	1425	1495	1495
NW POOL	234	191	191	191	191	191	191	191	191	191	191
ROCKY MT-AREA	407	412	412	412	412	412	412	412	412	412	412
ARIZ-N.MEX	151	151	151	151	151	151	151	151	151	151	151
CALIF-SO.NEV	597	601	601	601	601	601	601	601	671	741	741
TOTAL(U.S.)	21546	21513	21765	22023	22111	22343	22340	22844	23091	23551	23727
NERC-CANADA											
MAPP	22	22	22	22	22	22	22	22	22	22	22
NPCC	856	896	896	896	896	896	896	896	896	896	896
NEW BRUNSWICK	26	26	26	26	26	26	26	26	26	26	26
NOVA SCOTIA	205	205	205	205	205	205	205	205	205	205	205
ONTARIO	190	230	230	230	230	230	230	230	230	230	230
QUEBEC	435	435	435	435	435	435	435	435	435	435	435
WSCC	99	99	99	99	99	99	94	94	94	94	94
TOTAL(CANADA)	977	1017	1017	1017	1017	1017	1012	1012	1012	1012	1012
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	22523	22530	22782	23040	23128	23360	23352	23856	24103	24563	24739

---

[a] Includes diesel units.

North American
Electric
Reliability
Council

APPENDIX A
ACTUAL AND PROJECTED OIL-COMBINED CYCLE GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	22	22	22	22	22	22	22	22	22	22	157
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	114	114	114	114	114	114	114	114	114	114	114
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	51	51	51	51	51	51	51	51	51	51	51
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	14	14	14	14	14	14	14	14	206	206	206
FLORIDA	14	14	14	14	14	14	14	14	206	206	206
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	201	201	201	201	201	201	201	201	393	393	528
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	201	201	201	201	201	201	201	201	393	393	528

APPENDIX A

ACTUAL AND PROJECTED GAS-FIRED GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1520	1520	1520	1530	1415	1555	1675	1861	2061	2209	2344
ERCOT	25145	25620	25620	25690	25760	25934	25934	25884	25724	25756	25890
MAAC	4757	4734	4774	4990	5112	5312	5312	5312	5512	5812	6538
MAIN	319	319	319	319	319	469	544	544	619	619	694
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	37	37	37	37	37	37	37	37	37	37	37
S CENT ILLINOIS	30	30	30	30	30	30	30	30	30	30	30
WIS-UPPER MICH	252	252	252	252	252	402	477	477	552	552	627
MAPP	0	171	171	171	171	171	171	171	171	171	171
NPCC	1128	1106	1106	1106	1106	1106	1106	1106	1106	1106	1106
NEW YORK	45	45	45	45	45	45	45	45	45	45	45
NEPOOL	1083	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061
SERC	7312	7503	7526	7593	7698	8018	8805	9685	10502	11476	11866
FLORIDA	6525	6715	6738	6805	6800	7120	7837	8607	9424	10398	10788
SOUTHERN	763	764	764	764	874	874	944	1054	1054	1054	1054
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	24	24	24	24	24	24	24	24	24	24	24
SPP	12402	12333	12400	12740	12674	12396	12396	12396	12470	12759	12867
SOUTHEAST	3256	3256	3256	3571	3505	3471	3471	3471	3471	3418	3418
WEST CENTRAL	8526	8457	8457	8482	8482	8238	8238	8238	8312	8474	8474
NORTHERN	620	620	687	687	687	687	687	687	687	867	975
WSCC	1908	1908	1908	1908	1908	1908	1962	1954	2000	2000	2000
NW POOL	12	12	12	12	12	12	12	12	12	12	12
ROCKY MT-AREA	16	16	16	16	16	16	70	62	108	108	108
ARIZ-N.MEX	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040
CALIF-SO.NEV	840	840	840	840	840	840	840	840	840	840	840
TOTAL(U.S.)	54491	55214	55344	56047	56163	56869	57905	58913	60165	61908	63476
NERC-CANADA											
MAPP	219	342	342	434	480	480	480	480	480	480	480
NPCC	588	588	588	588	588	588	588	588	588	588	588
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	588	588	588	588	588	588	588	588	588	588	588
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	2169	2169	2169	2123	2016	2016	2016	2016	2190	2190	2264
TOTAL(CANADA)	2976	3099	3099	3145	3084	3084	3084	3084	3258	3258	3332
NERC-MEXICO											
WSCC	169	169	169	169	169	169	169	169	169	169	169
TOTAL(MEXICO)	169	169	169	169	169	169	169	169	169	169	169
NERC-TOTAL	57636	58482	58612	59361	59416	60122	61158	62166	63592	65335	66977

---

[a] Includes gas-fired steam, combustion turbine (and diesel), and combined cycle units. Excludes dual fuel (oil/gas)-fired capacity.

North American
Electric
Reliability
Council

APPENDIX A
ACTUAL AND PROJECTED GAS-STEAM GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	141	141	141	141	26	26	26	26	26	26	26
ERCOT	24342	24555	24555	24555	24555	24519	24519	24259	24099	23991	23925
MAAC	1903	1903	1903	1903	1903	1903	1903	1903	1903	1903	2229
MAIN	53	53	53	53	53	53	53	53	53	53	53
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	53	53	53	53	53	53	53	53	53	53	53
MAPP	0	101	101	101	101	101	101	101	101	101	101
NPCC	592	592	592	592	592	592	592	592	592	592	592
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	592	592	592	592	592	592	592	592	592	592	592
SERC	5213	5404	5404	5404	5404	5714	5890	5890	5873	5821	5821
FLORIDA	4501	4691	4691	4691	4691	5001	5177	5177	5160	5108	5108
SOUTHERN	712	713	713	713	713	713	713	713	713	713	713
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	10963	10894	10894	11209	11143	10865	10865	10865	10939	11169	11277
SOUTHEAST	3248	3248	3248	3563	3497	3463	3463	3463	3463	3418	3418
WEST CENTRAL	7396	7327	7327	7327	7327	7083	7083	7083	7157	7319	7319
NORTHERN	319	319	319	319	319	319	319	319	319	432	540
WSCC	1179	1179	1179	1179	1179	1179	1179	1171	1163	1163	1163
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	16	16	16	16	16	16	16	8	0	0	0
ARIZ-N.MEX	805	805	805	805	805	805	805	805	805	805	805
CALIF-SO.NEV	358	358	358	358	358	358	358	358	358	358	358
TOTAL(U.S.)	44386	44822	44822	45137	44956	44952	45128	44860	44749	44819	45187
NERC-CANADA											
MAPP	95	220	220	220	220	220	220	220	220	220	220
NPCC	588	588	588	588	588	588	588	588	588	588	588
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	588	588	588	588	588	588	588	588	588	588	588
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	1866	1866	1866	1866	1788	1788	1788	1788	1788	1788	1788
TOTAL(CANADA)	2549	2674	2674	2674	2596	2596	2596	2596	2596	2596	2596
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	46935	47496	47496	47811	47552	47548	47724	47456	47345	47415	47783

APPENDIX A
ACTUAL AND PROJECTED GAS-COMBUSTION TURBINE GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1379	1379	1379	1389	1389	1529	1649	1835	2035	2183	2318
ERCOT	275	475	475	545	615	615	615	615	615	755	755
MAAC	2636	2613	2653	2869	2991	3191	3191	3191	3391	3591	3991
MAIN	266	266	266	266	266	416	491	491	566	566	641
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	37	37	37	37	37	37	37	37	37	37	37
S CENT ILLINOIS	30	30	30	30	30	30	30	30	30	30	30
WIS-UPPER MICH	199	199	199	199	199	349	424	424	499	499	574
MAPP	0	70	70	70	70	70	70	70	70	70	70
NPCC	244	222	222	222	222	222	222	222	222	222	222
NEW YORK	45	45	45	45	45	45	45	45	45	45	45
NEPOOL	199	177	177	177	177	177	177	177	177	177	177
SERC	1575	1575	1598	1665	1770	1780	1951	2061	2129	2389	2389
FLORIDA	1500	1500	1523	1590	1585	1595	1696	1696	1764	2024	2024
SOUTHERN	51	51	51	51	161	161	231	341	341	341	341
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	24	24	24	24	24	24	24	24	24	24	24
SPP	686	686	753	778	778	778	778	778	778	837	837
SOUTHEAST	8	8	8	8	8	8	8	8	8	0	0
WEST CENTRAL	377	377	377	402	402	402	402	402	402	402	402
NORTHERN	301	301	368	368	368	368	368	368	368	435	435
WSCC	12	12	12	12	12	12	66	66	120	120	120
NW POOL	12	12	12	12	12	12	12	12	12	12	12
ROCKY MT-AREA	0	0	0	0	0	0	54	54	108	108	108
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	7073	7298	7428	7816	8113	8613	9033	9329	9926	10733	11343
NERC-CANADA											
MAPP	124	122	122	214	260	260	260	260	260	260	260
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	303	303	303	257	228	228	228	228	402	402	476
TOTAL(CANADA)	427	425	425	471	488	488	488	488	662	662	736
NERC-MEXICO											
WSCC	169	169	169	169	169	169	169	169	169	169	169
TOTAL(MEXICO)	169	169	169	169	169	169	169	169	169	169	169
NERC-TOTAL	7669	7892	8022	8456	8770	9270	9690	9986	10757	11564	12248

---

[a] Includes diesel units.

North American
Electric
Reliability
Council

APPENDIX A
ACTUAL AND PROJECTED GAS-COMBINED CYCLE GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	528	590	590	590	590	800	800	1010	1010	1010	1210
MAAC	218	218	218	218	218	218	218	218	218	318	318
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	292	292	292	292	292	292	292	292	292	292	292
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	292	292	292	292	292	292	292	292	292	292	292
SERC	524	524	524	524	524	524	964	1734	2500	3266	3656
FLORIDA	524	524	524	524	524	524	964	1734	2500	3266	3656
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	753	753	753	753	753	753	753	753	753	753	753
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	753	753	753	753	753	753	753	753	753	753	753
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	717	717	717	717	717	717	717	717	717	717	717
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	235	235	235	235	235	235	235	235	235	235	235
CALIF-SO.NEV	482	482	482	482	482	482	482	482	482	482	482
TOTAL(U.S.)	3032	3094	3094	3094	3094	3304	3744	4724	5490	6356	6946
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	3032	3094	3094	3094	3094	3304	3744	4724	5490	6356	6946

APPENDIX A

ACTUAL AND PROJECTED DUAL FUEL(OIL/GAS)-FIRED GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	6024	6729	6729	7119	7119	7119	7249	7249	7249	7596	7596
MAAC	134	134	134	134	134	134	134	134	134	134	134
MAIN	1572	1510	1508	1518	1518	1518	1518	1518	1568	1568	1568
CMNWLTH EDISON	602	602	602	602	602	602	602	602	602	602	602
EAST MISSOURI	278	278	278	278	278	278	278	278	278	278	278
S CENT ILLINOIS	310	279	277	279	279	279	279	279	279	279	279
WIS-UPPER MICH	382	351	351	359	359	359	359	359	409	409	409
MAPP	721	672	672	672	672	671	671	671	720	720	720
NPCC	11027	11027	11027	11027	11027	11027	11027	11011	11011	11011	11011
NEW YORK	8970	8970	8970	8970	8970	8970	8970	8970	8970	8970	8970
NEPOOL	2057	2057	2057	2057	2057	2057	2057	2041	2041	2041	2041
SERC	3125	3125	3125	3310	3310	3711	3711	3927	3927	4143	4143
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	421	421	421	421	421	421	421	421	421	421	421
TVA	602	602	602	602	602	602	602	602	602	602	602
VACAR	2102	2102	2102	2287	2287	2688	2688	2904	2904	3120	3120
SPP	16764	16033	16058	16058	15969	15830	15774	15704	16217	16969	17240
SOUTHEAST	13192	12463	12463	12463	12374	12235	12210	12140	12331	12286	12286
WEST CENTRAL	1628	1628	1638	1638	1638	1638	1638	1638	1638	1878	2048
NORTHERN	1944	1942	1957	1957	1957	1957	1926	1926	2248	2805	2906
WSCC[b]	28863	27054	27284	27394	27331	27442	27657	27968	28587	28970	29234
NW POOL	1911	1837	1837	1897	1906	1897	1897	1897	1897	1906	1897
ROCKY MT-AREA	481	481	481	481	481	481	481	481	481	481	481
ARIZ-N.MEX	3659	3113	3113	3029	3200	3200	3315	3430	3529	3712	3712
CALIF-SO.NEV	22800	21632	21862	21996	21762	21873	21973	22169	22689	22889	23153
TOTAL(U.S.)	68230	66284	66537	67232	67080	67452	67741	68182	69413	71111	71646
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	93	93	93	93	93	93	93	93	93
TOTAL(CANADA)	0	0	93	93	93	93	93	93	93	93	93
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	68230	66284	66630	67325	67173	67545	67834	68275	69506	71204	71739

---

[a] Includes dual fuel(oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.

[b] See Appendix A, page 1, footnote a.

North American
Electric
Reliability
Council

APPENDIX A
ACTUAL AND PROJECTED DUAL FUEL(OIL/GAS)-STEAM GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	5290	5410	5410	5410	5410	5410	5410	5410	5410	5410	5410
MAAC	134	134	134	134	134	134	134	134	134	134	134
MAIN	524	484	484	477	477	477	477	477	477	477	477
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	265	265	265	265	265	265	265	265	265	265	265
S CENT ILLINOIS	147	138	138	138	138	138	138	138	138	138	138
WIS-UPPER MICH	112	81	81	74	74	74	74	74	74	74	74
MAPP	217	168	168	168	168	163	163	163	163	163	163
NPCC	8991	8991	8991	8991	8991	8991	8991	8975	8975	8975	8975
NEW YORK	7276	7276	7276	7276	7276	7276	7276	7276	7276	7276	7276
NEPOOL	1715	1715	1715	1715	1715	1715	1715	1699	1699	1699	1699
SERC	1271	1271	1271	1271	1271	1271	1271	1271	1271	1271	1271
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	359	359	359	359	359	359	359	359	359	359	359
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	912	912	912	912	912	912	912	912	912	912	912
SPP	15884	15155	15145	15145	15056	14917	14861	14791	15049	15004	15030
SOUTHEAST	12884	12155	12155	12155	12066	11927	11902	11832	12023	11978	11978
WEST CENTRAL	1575	1575	1585	1585	1585	1585	1585	1585	1585	1585	1585
NORTHERN	1425	1425	1405	1405	1405	1405	1374	1374	1441	1441	1467
WSCC	23034	21313	21543	21519	21400	21511	21626	21867	22286	22394	22658
NW POOL	542	542	542	602	602	602	602	602	602	602	602
ROCKY MT-AREA	264	264	264	264	264	264	264	264	264	264	264
ARIZ-N.MEX	1757	1215	1215	1131	1246	1246	1361	1476	1575	1683	1683
CALIF-SO.NEV	20471	19292	19522	19522	19288	19399	19399	19525	19845	19845	20109
TOTAL(U.S.)	55345	52926	53146	53115	52907	52874	52933	53088	53765	53828	54118
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	55345	52926	53146	53115	52907	52874	52933	53088	53765	53828	54118

APPENDIX A

ACTUAL AND PROJECTED DUAL FUEL(OIL/GAS)-COMBUSTION TURBINE GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	734	1319	1319	1709	1709	1709	1839	1839	1839	2186	2186
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	1048	1026	1024	1041	1041	1041	1041	1041	1091	1091	1091
CMNWLTH EDISON	602	602	602	602	602	602	602	602	602	602	602
EAST MISSOURI	13	13	13	13	13	13	13	13	13	13	13
S CENT ILLINOIS	163	141	139	141	141	141	141	141	141	141	141
WIS-UPPER MICH	270	270	270	285	285	285	285	285	335	335	335
MAPP	504	504	504	504	504	508	508	508	557	557	557
NPCC	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871
NEW YORK	1694	1694	1694	1694	1694	1694	1694	1694	1694	1694	1694
NEPOOL	177	177	177	177	177	177	177	177	177	177	177
SERC	1766	1766	1766	1766	1766	1766	1766	1766	1766	1766	1766
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	62	62	62	62	62	62	62	62	62	62	62
TVA	602	602	602	602	602	602	602	602	602	602	602
VACAR	1102	1102	1102	1102	1102	1102	1102	1102	1102	1102	1102
SPP	602	600	616	616	616	616	616	616	796	1593	1763
SOUTHEAST	105	105	105	105	105	105	105	105	105	105	105
WEST CENTRAL	53	53	53	53	53	53	53	53	53	293	463
NORTHERN	444	442	458	458	458	458	458	458	638	1195	1195
WSCC[b]	4065	3982	3982	4116	4172	4172	4062	3922	3922	3997	3997
NW POOL	869	802	802	802	804	802	802	802	802	804	802
ROCKY MT-AREA	217	217	217	217	217	217	217	217	217	217	217
ARIZ-N.MEX	1288	1284	1284	1284	1340	1340	1340	1340	1340	1415	1415
CALIF-SO.NEV	1679	1688	1688	1822	1822	1822	1712	1572	1572	1572	1572
TOTAL(U.S.)	10590	11068	11082	11623	11679	11683	11703	11563	11842	13061	13231
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	93	93	93	93	93	93	93	93	93
TOTAL(CANADA)	0	0	93	93	93	93	93	93	93	93	93
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	10590	11068	11175	11716	11772	11776	11796	11656	11935	13154	13324

---

[a] Includes diesel units.

[b] See Appendix A, page 1, footnote a.

North American
Electric
Reliability
Council

APPENDIX A
ACTUAL AND PROJECTED DUAL FUEL(OIL/GAS)-COMBINED CYCLE GENERATING CAPACITY - SUMMER - MW

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	165	165	165	165	165	165	165	165	165	165	165
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	165	165	165	165	165	165	165	165	165	165	165
SERC	88	88	88	273	273	674	674	890	890	1106	1106
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	88	88	88	273	273	674	674	890	890	1106	1106
SPP	278	278	297	297	297	297	297	297	372	372	447
SOUTHEAST	203	203	203	203	203	203	203	203	203	203	203
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	75	75	94	94	94	94	94	94	169	169	244
WSCC[a]	1764	1759	1759	1759	1759	1759	1969	2179	2379	2579	2579
NW POOL	500	493	493	493	500	493	493	493	493	500	493
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	614	614	614	614	614	614	614	614	614	614	614
CALIF-SO.NEV	650	652	652	652	652	652	862	1072	1272	1472	1472
TOTAL(U.S.)	2295	2290	2309	2494	2494	2895	3105	3531	3806	4222	4297
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	2295	2290	2309	2494	2494	2895	3105	3531	3806	4222	4297

---

[a] See Appendix A, page 1, footnote a.

APPENDIX A
ACTUAL AND PROJECTED OTHER (UTILITY) GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	60	120	180
ERCOT	0	0	0	18	18	54	54	54	54	54	54
MAAC[b]	0	0	0	0	129	89	42	62	42	177	177
MAIN	3	3	3	3	3	3	3	3	3	3	3
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	3	3	3	3	3	3	3	3	3	3	3
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP[c]	95	97	97	97	97	97	97	97	97	97	97
NPCC	52	52	52	52	52	52	52	52	52	52	52
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	52	52	52	52	52	52	52	52	52	52	52
SERC	0	0	0	0	0	0	0	250	500	750	1000
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	250	500	750	1000
SPP	688	688	688	688	688	688	718	718	718	556	556
SOUTHEAST	145	145	145	145	145	145	145	145	145	145	145
WEST CENTRAL	543	543	543	543	543	543	543	543	543	381	381
NORTHERN	0	0	0	0	0	0	30	30	30	30	30
WSCC[d]	338	164	208	287	345	495	660	810	973	1183	1218
NW POOL	79	79	122	122	122	122	122	122	122	122	122
ROCKY MT-AREA	0	0	0	0	5	5	20	20	25	25	35
ARIZ-N.MEX	0	0	0	0	2	2	2	2	10	20	20
CALIF-SO.NEV	259	84	85	164	215	365	515	665	815	1015	1040
TOTAL(U.S.)	1176	1004	1048	1145	1332	1478	1626	2046	2499	2992	3337
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1176	1004	1048	1145	1332	1478	1626	2046	2499	2992	3337

---

[a] Includes utility-owned capacity other than nuclear, coal-, oil-, and gas-fired, conventional hydro, geothermal, and pumped storage units.

[b] Includes Bethlehem Steel, and Delaware City 1&2 generation.

[c] Steam units using wood or refuse derived fuel, and a combined cycle unit using waste heat.

[d] See Appendix A, page 1, footnote a.

APPENDIX A
ACTUAL AND PROJECTED NON-UTILITY GENERATING CAPACITY[a] - SUMMER - MW

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	148	192	241	946	1329	1552	1775	1885	1999	2308	2308
ERCOT	2956	2537	2557	2377	2426	2526	2926	2801	2206	2506	2506
MAAC	183	269	882	1576	1967	2634	2940	2960	2991	3001	3126
MAIN	0	0	0	0	0	0	0	0	0	0	12
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	12
MAPP	0	216	216	256	256	256	281	281	281	281	281
NPCC	874	1517	2202	3347	3939	4005	4220	4453	4523	4557	4572
NEW YORK	475	536	868	1807	2333	2366	2581	2814	2884	2918	2933
NEPOOL	399	981	1334	1540	1606	1639	1639	1639	1639	1639	1639
SERC	961	1526	1901	2892	3518	3823	4432	4759	5152	5542	5910
FLORIDA	506	764	861	1156	1209	1332	1601	1623	1667	1741	1764
SOUTHERN	153	154	154	154	154	154	154	154	154	154	154
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	302	608	886	1582	2155	2337	2677	2982	3331	3647	3992
SPP	31	47	148	151	454	457	460	465	472	577	582
SOUTHEAST	0	11	11	11	11	11	11	11	11	11	11
WEST CENTRAL	0	0	100	100	400	400	400	400	400	500	500
NORTHERN	31	36	37	40	43	46	49	54	61	66	71
WSCC	2588	4835	6768	7884	8241	8274	8314	8330	8355	8357	8359
NW POOL	386	548	638	661	669	695	707	707	707	707	707
ROCKY MT-AREA	28	170	175	290	515	515	515	515	515	515	515
ARIZ-N.MEX	360	360	360	360	360	360	360	360	360	362	364
CALIF-SO.NEV	1740	3757	5596	6568	6692	6699	6727	6743	6768	6768	6768
TOTAL(U.S.)	7741	11139	14915	19429	22130	23527	25348	25934	25979	27129	27656
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	50	125	145	165	195	225	255	285
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	50	125	145	165	195	225	255	285
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	50	125	145	165	195	225	255	285
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	7741	11139	14915	19479	22255	23672	25513	26129	26204	27384	27941

---

[a] Non-utility generating capacity includes the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak.

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY COAL - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	404680	389412	395387	400709	399051	409782	411388	417896	424302	432522	438835
ERCOT	80097	80563	80990	83264	84424	86858	86907	93865	97109	99946	111120
MAAC	100554	96814	90503	93940	90964	94456	95717	98868	99895	103853	102816
MAIN	105598	98777	101955	104622	102586	106583	110610	111942	115272	116558	115597
CMNWLTH EDISON	21910	17760	15735	17390	15990	17830	19020	18990	20140	21265	20860
EAST MISSOURI	22335	21239	23456	23458	22888	24737	25409	24904	26737	26372	25730
S CENT ILLINOIS	33727	29849	31731	31871	31594	31174	32733	33955	33812	33704	33300
WIS-UPPER MICH	27626	29929	31033	31903	32114	32842	33448	34093	34583	35217	35707
MAPP	80044	85800	84366	87653	86805	88530	90217	92134	91960	95993	96034
NPCC	42056	41461	39991	38454	37397	39068	39453	40262	41339	42596	43655
NEW YORK	25204	25749	25441	25275	25471	26620	26695	26908	27629	28899	29531
NEPOOL	16852	15712	14550	13179	11926	12448	12758	13354	13710	13697	14124
SERC	344447	342246	337455	344099	346524	349590	348466	349316	356638	373920	378193
FLORIDA	47014	53371	56130	56610	56507	56933	57651	57376	63574	69613	69569
SOUTHERN	123415	120070	118554	124053	125135	127150	123660	119929	120211	123311	126123
TVA	80839	80673	74392	70810	70110	64078	65347	63576	66400	66126	69502
VACAR	93179	88132	88379	92626	94772	101429	101808	108435	106453	114870	112999
SPP	129473	124804	124631	129089	129835	132928	134263	137190	140019	142155	143337
SOUTHEAST	35344	30867	30391	29569	30140	31695	30787	32045	32473	31762	32529
WEST CENTRAL	47497	47543	47781	51104	51360	52250	53151	54828	55692	57323	58011
NORTHERN	46632	46394	46459	48416	48335	48983	50325	50317	51854	53070	52797
WSCC	165687	164007	171452	173246	179683	182490	185779	186632	188721	193781	195138
NW POOL	63021	63467	67887	69288	71575	73122	75537	75380	75101	75461	74910
ROCKY MT-AREA	32036	28763	29807	29955	30376	30784	31250	30863	31031	34134	35025
ARIZ-N.MEX	37638	38848	41740	43138	44862	45666	46977	48353	49816	51356	51679
CALIF-SO.NEV	32992	32929	32018	30865	32870	32918	32015	32036	32773	32830	33524
TOTAL(U.S.)	1452636	1423884	1426730	1455076	1457269	1490285	1502800	1528105	1555255	1601324	1624725
NERC-CANADA											
MAPP	9337	8840	8840	9200	9513	10005	10556	10799	10919	11103	11445
NPCC	38233	32786	26902	27311	25631	24439	27640	32313	36057	40406	44529
NEW BRUNSWICK	1227	1049	1027	1071	1089	1098	2315	4554	4903	6054	6087
NOVA SCOTIA	5306	6141	6408	6618	6913	7531	7713	8449	9320	9699	9863
ONTARIO	31700	25596	19467	19622	17629	15810	17612	19310	21834	24653	28579
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	30689	30060	31092	32686	34332	35681	36461	37906	39438	41785	43871
TOTAL(CANADA)	78259	71686	66834	69197	69476	70125	74657	81018	86414	93294	99845
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1530895	1495570	1493564	1524273	1526745	1560410	1577457	1609123	1641669	1694618	1724570

APPENDIX B

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY NUCLEAR - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	28200	37693	39808	41734	49637	43365	48203	47292	48193	46400	47197
ERCOT	0	5782	20230	25928	25801	26501	26753	27784	27693	28349	28720
MAAC	60863	57475	70268	65433	73413	70590	74592	71836	73195	72058	74643
MAIN	65209	81022	81307	81476	86511	85725	84992	87680	86695	86650	89379
CMNWLTH EDISON	45943	55200	58680	58205	61570	60720	61120	62680	62380	62620	64080
EAST MISSOURI	6284	9059	7152	7534	8984	7673	7699	8846	6927	7724	9066
S CENT ILLINOIS	1803	5509	4521	4679	4656	6108	4941	4905	6067	4951	4910
WIS-UPPER MICH	11179	11254	10954	11058	11301	11224	11232	11249	11321	11355	11323
MAPP	25192	24871	25545	24461	24904	25919	24012	24406	25812	24174	24098
NPCC	51905	60517	68011	76265	80130	79164	79792	79626	78453	79264	79632
NEW YORK	22584	26670	29488	31147	32888	33548	32982	33539	33009	33663	33013
NEPOOL	29321	33847	38523	45118	47242	45616	46810	46087	45444	45601	46619
SERC	131877	156007	171852	176716	183073	188866	188266	193352	196625	192834	196481
FLORIDA	18664	24247	23367	22291	23481	24051	21393	24213	23367	22365	23297
SOUTHERN	26886	28832	32873	33320	34880	34082	32869	34791	33979	32971	34555
TVA	-207[a]	12055	21385	28128	30540	36887	37563	41592	41142	44426	43310
VACAR	86534	90873	94227	92977	94172	93846	96441	92756	98137	93072	95319
SPP	35830	36780	36667	37759	39140	37353	38283	38554	36394	38537	39624
SOUTHEAST	29747	29702	28659	30849	31993	29092	31140	30828	28958	31358	31922
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	6083	7078	8008	6910	7147	8261	7143	7726	7436	7179	7702
WSCC	53308	69095	73754	71938	75951	70986	71607	68158	69178	66376	69734
NW POOL	9896	18186	17960	17958	17958	18069	15435	13464	13464	13545	13464
ROCKY MT-AREA	169	1325	1325	1007	336	0	0	0	0	0	0
ARIZ-N.MEX	9940	14775	15056	16597	17171	17274	17305	17029	17002	17102	17444
CALIF-SO.NEV	33303	34809	39413	36376	40486	35643	38867	37665	38712	35729	38826
TOTAL(U.S.)	452384	529242	587442	601710	638560	628469	636500	638688	642238	634642	649508
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	73426	79448	88166	93581	101257	106930	109889	112958	114051	113691	111678
NEW BRUNSWICK	5110	4596	3930	4484	4484	4484	4484	4484	4484	4484	4484
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	63116	69252	79236	83597	91273	97646	100605	103674	104767	104107	102194
QUEBEC	5200	5600	5000	5500	5500	4800	4800	4800	4800	5100	5000
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	73426	79448	88166	93581	101257	106930	109889	112958	114051	113691	111678
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	525810	608690	675608	695291	739817	735399	746389	751646	756289	748333	761186

---

[a] Testing and startup of nuclear units not in service.

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY HYDRO[a] - Millions kWh

North American Electric Reliability Council	ACTUAL[b]	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	2819	2965	2969	2966	2964	2962	2970	2968	2966	2964	2962
ERCOT[c]	730	465	465	465	465	465	465	465	465	465	465
MAAC	4115	3781	3781	3781	3781	3781	3781	3781	3781	3781	3781
MAIN	2661	2091	2125	2202	2202	2202	2222	2222	2222	2221	2222
CMNWLTH EDISON	10	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	1549	786	786	786	786	786	786	786	786	786	786
S CENT ILLINOIS	9	10	10	10	10	10	10	10	10	10	10
WIS-UPPER MICH	1093	1295	1329	1406	1406	1406	1426	1426	1426	1425	1426
MAPP	11746	13064	13280	13173	13178	13318	13311	13328	13329	13359	13369
NPCC	32685	29983	29378	29157	29341	29518	29477	29506	29578	29173	29109
NEW YORK[c]	28280	25722	25156	24956	25131	25258	25269	25298	25356	24950	24894
NEPOOL[c]	4405	4261	4222	4201	4210	4260	4208	4208	4222	4223	4215
SERC	28889	33342	33340	33340	41625	33529	33526	33526	33526	33541	33608
FLORIDA	215	244	244	244	244	244	244	244	244	244	244
SOUTHERN[c]	6954	8468	8468	8468	8654	8654	8654	8654	8654	8666	8736
TVA	14939	18497	18497	18497	18497	18497	18497	18497	18497	18497	18497
VACAR	6781	6133	6131	6131	14230	6134	6131	6131	6131	6134	6131
SPP	7135	5689	5881	5930	5930	5930	5930	5970	6055	6055	6055
SOUTHEAST	289	167	294	294	294	294	294	334	419	419	419
WEST CENTRAL	6778	5462	5527	5576	5576	5576	5576	5576	5576	5576	5576
NORTHERN	68	60	60	60	60	60	60	60	60	60	60
WSCC	161139	156351	157651	157648	158540	158538	157858	158750	158490	159244	158336
NW POOL	121494	110615	110317	110459	111459	111786	110814	110925	110953	111327	110460
ROCKY MT-AREA	9155	9595	9605	9544	9544	9544	9544	9544	9544	9544	9544
ARIZ-N.MEX	3400	4176	4418	4332	4269	4015	4097	4347	4220	4369	4260
CALIF-SO.NEV	27090	31965	33311	33313	33268	33193	33403	33934	33773	34004	34072
TOTAL(U.S.)	251919	247731	248870	248662	258026	250243	249540	250516	250412	250803	249907
NERC-CANADA											
MAPP	21931	24650	25098	26421	30088	31405	31717	31750	31922	32040	32065
NPCC	152059	158308	161885	167245	172045	173359	173979	171879	183147	190220	194872
NEW BRUNSWICK[c]	2065	2695	2695	2695	2695	2695	2695	2695	2695	2695	2695
NOVA SCOTIA	753	1011	1011	1011	1011	1011	1011	1011	1011	1011	1011
ONTARIO	31611	37000	36538	36439	36339	36353	35073	35073	35641	35814	36366
QUEBEC[c]	117630	117602	121641	127100	132000	133300	135200	133100	143800	150700	154800
WSCC	56013	48719	48426	48762	48798	48827	48844	48863	48889	48916	48937
TOTAL(CANADA)	230003	231677	235409	242428	250931	253591	254540	252492	263958	271176	275874
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	481922	479408	484279	491090	508957	503834	504080	503008	514370	521979	525781

[a] Conventional hydro. Adverse hydro conditions are generally assumed for forecast years by most systems.
[b] Data for actual years can be greater than for forecast years if median or average hydro conditions occurred.
[c] Average or median hydro conditions for projections.

North American
Electric
Reliability
Council

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL AND GAS[a] - Millions kWh

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1179	2065	2693	2044	1740	1828	1660	1860	2017	2533	2614
ERCOT	89555	90072	77521	73271	76642	78387	82717	80533	84339	87763	84106
MAAC	21571	21589	15997	15553	11219	12423	10927	15646	17395	19680	22306
MAIN	1896	559	583	687	675	1138	1444	1640	2396	2734	3634
CMNWLTH EDISON	1453	335	335	425	405	810	930	1025	1635	1885	2440
EAST MISSOURI	237	115	108	107	112	142	166	93	127	142	218
S CENT ILLINOIS	59	58	101	111	123	114	261	357	413	489	698
WIS-UPPER MICH	147	51	39	44	35	72	87	165	221	218	278
MAPP	786	770	835	962	1049	1103	1135	1100	1196	1233	1320
NPCC	85047	79877	75825	62007	53716	56060	58162	60245	63450	67300	70446
NEW YORK	47824	43851	42484	36097	32331	31255	32494	32563	34387	36484	38718
NEPOOL	37223	36026	33341	25910	21385	24805	25668	27682	29063	30816	31728
SERC	42187	33535	34631	39112	42865	47252	54284	58328	57568	57694	61509
FLORIDA	38196	31112	33041	36913	40307	43944	49959	53129	52512	52262	55528
SOUTHERN	1252	1256	778	1009	883	848	949	916	949	1057	953
TVA	29	469	166	110	139	62	89	90	135	163	257
VACAR	2710	698	646	1080	1536	2398	3287	4193	3972	4212	4771
SPP	62861	59728	61155	59723	56985	61289	63156	64845	68618	67420	69594
SOUTHEAST	38543	36760	38047	36351	32509	35382	35713	36312	38631	36336	36275
WEST CENTRAL	23542	21800	21861	22166	22892	24458	25611	26107	27586	28364	30256
NORTHERN	776	1168	1247	1206	1584	1449	1832	2426	2401	2720	3063
WSCC	69067	46399	35829	36779	34211	39075	45207	49745	52911	58856	62253
NW POOL	339	588	591	587	587	615	3337	3855	3820	3849	4136
ROCKY MT-AREA	462	275	278	300	308	325	365	394	473	413	272
ARIZ-N.MEX	4592	4155	4667	3852	3155	3507	4119	4651	4987	5258	5570
CALIF-SO.NEV	63674	41381	30293	32040	30161	34628	37386	40845	43631	49336	52275
TOTAL(U.S.)	374149	334594	305069	290138	279102	298555	318692	333942	349890	365213	377782
NERC-CANADA											
MAPP	222	223	222	314	446	447	274	279	144	138	151
NPCC	4762	3879	5265	6561	7516	8036	8415	7635	7856	7730	8232
NEW BRUNSWICK	3389	3152	4216	4886	5724	6578	6973	6600	7325	7248	7462
NOVA SCOTIA	1342	615	976	1601	1720	1384	1401	907	306	198	307
ONTARIO	31	112	73	74	72	74	41	128	225	284	463
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	1219	3628	2874	2992	3242	4232	5745	6084	6967	8072	8025
TOTAL(CANADA)	6203	7730	8361	9867	11204	12715	14434	13998	14967	15940	16408
NERC-MEXICO											
WSCC	1108	1079	1207	1600	1837	1833	1748	2092	2461	2868	3294
TOTAL(MEXICO)	1108	1079	1207	1600	1837	1833	1748	2092	2461	2868	3294
NERC-TOTAL	381460	343403	314637	301605	292143	313103	334874	350032	367318	384021	397484

---

[a] Coal-fired, gas-fired, and dual fuel(oil/gas)-fired steam, combustion turbine (and diesel), and combined cycle units.

APPENDIX B

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL[a] - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1105	1864	2443	1887	1615	1703	1511	1718	1850	2341	2353
ERCOT	323	474	399	466	415	425	449	433	432	501	447
MAAC	13736	10334	6376	9212	5853	6813	5608	9223	10086	10835	12329
MAIN	1593	329	384	528	501	912	1090	1205	1825	2085	2744
CMNWLTH EDISON	1326	230	280	415	385	780	890	980	1550	1780	2290
EAST MISSOURI	180	70	56	59	63	75	85	61	79	70	109
S CENT ILLINOIS	41	19	29	35	38	43	97	145	172	207	315
WIS-UPPER MICH	46	10	19	19	15	14	18	19	24	28	30
MAPP	438	397	428	460	484	498	519	521	554	563	623
NPCC	63693	64978	61905	50247	42907	46200	49133	51216	54316	58144	61262
NEW YORK	31432	29671	29254	24757	21931	21805	23994	24063	25887	27984	30218
NEPOOL	32261	35307	32651	25490	20976	24395	25139	27153	28429	30160	31044
SERC	23977	12723	14025	17951	20725	24072	29329	33132	32341	32570	36227
FLORIDA	21342	11589	13359	17332	20054	22940	27565	30536	29787	29542	32569
SOUTHERN	134	163	63	120	97	42	53	34	35	43	41
TVA	29	469	166	110	139	62	89	90	135	163	257
VACAR	2472	502	437	389	435	1028	1622	2472	2384	2822	3360
SPP	278	490	117	155	373	349	184	550	563	439	1230
SOUTHEAST	240	428	53	92	246	250	81	444	453	342	1081
WEST CENTRAL	15	13	13	13	13	13	13	13	14	27	51
NORTHERN	23	49	51	50	114	86	90	93	96	70	98
WSCC	2428	2110	2357	2999	3225	3219	3385	3450	3344	3397	3483
NW POOL	222	0	0	0	0	0	18	194	194	194	194
ROCKY MT-AREA	17	16	15	18	18	19	19	21	23	22	22
ARIZ-N.MEX	42	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	2147	2094	2342	2981	3207	3200	3348	3235	3127	3181	3267
TOTAL(U.S.)	107571	93699	88434	83905	76098	84191	91208	101448	105311	110875	120698
NERC-CANADA											
MAPP	19	20	19	19	19	19	19	19	19	20	20
NPCC	4762	3879	5265	6561	7516	8036	8415	7635	7856	7730	8232
NEW BRUNSWICK	3389	3152	4216	4886	5724	6578	6973	6600	7325	7248	7462
NOVA SCOTIA	1342	615	976	1601	1720	1384	1401	907	306	198	307
ONTARIO	31	112	73	74	72	74	41	128	225	284	463
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	4781	3899	5284	6580	7535	8055	8434	7654	7875	7750	8252
NERC-MEXICO											
WSCC	1108	1079	1207	1600	1837	1833	1748	2092	2461	2868	3294
TOTAL(MEXICO)	1108	1079	1207	1600	1837	1833	1748	2092	2461	2868	3294
NERC-TOTAL	113460	98677	94925	92085	85470	94079	101390	111194	115647	121493	132244

---

[a] Oil-fired steam, combustion turbine (and diesel), and combined cycle units.

North American
Electric
Reliability
Council

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL-STEAM - Millions kWh

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1069	1692	2205	1660	1427	1459	1286	1494	1563	1904	1828
ERCOT	314	441	383	437	383	384	396	384	383	432	385
MAAC	12579	9640	5907	8825	5622	6562	5399	8899	9691	10401	11811
MAIN	1574	293	339	478	444	847	1005	1138	1720	1973	2564
CMNWLTH EDISON	1312	230	275	410	375	770	875	960	1515	1735	2225
EAST MISSOURI	180	45	36	34	33	36	36	36	38	38	36
S CENT ILLINOIS	41	18	28	34	36	41	94	142	167	200	303
WIS-UPPER MICH	41	0	0	0	0	0	0	0	0	0	0
MAPP	60	27	34	37	37	36	41	39	47	48	72
NPCC	62460	62906	60168	49551	42461	45828	48845	50741	53709	57579	60518
NEW YORK	30946	28526	27992	24216	21630	21544	23951	23970	25732	27910	30078
NEPOOL	31514	34380	32176	25335	20831	24284	24894	26771	27977	29669	30440
SERC	23609	12003	13664	17437	20102	23287	27659	30130	29103	29292	31357
FLORIDA	21038	11515	13272	17138	19744	22460	26430	28293	27571	27383	29510
SOUTHERN	129	92	56	79	74	23	33	24	25	25	11
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	2442	396	336	220	284	804	1196	1813	1507	1884	1836
SPP	267	441	55	67	252	251	61	432	430	305	1048
SOUTHEAST	239	415	29	41	225	223	33	400	395	249	955
WEST CENTRAL	14	13	13	13	13	13	13	13	14	27	51
NORTHERN	14	13	13	13	14	15	15	19	21	29	42
WSCC	2304	887	956	1173	1159	1200	1270	1116	999	1085	1139
NW POOL	221	0	0	0	0	0	18	18	18	18	18
ROCKY MT-AREA	16	12	12	15	15	15	15	15	15	15	15
ARIZ-N.MEX	42	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	2025	875	944	1158	1144	1185	1237	1083	966	1052	1106
TOTAL(U.S.)	104236	88330	83711	79665	71887	79854	85962	94373	97645	103019	110722
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4740	3825	5162	6308	7209	7827	8192	7487	7764	7640	8078
NEW BRUNSWICK	3387	3150	4214	4885	5723	6577	6971	6599	7321	7246	7459
NOVA SCOTIA	1333	576	888	1362	1427	1189	1188	778	253	157	235
ONTARIO	20	99	60	61	59	61	33	110	190	237	384
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	4740	3825	5162	6308	7209	7827	8192	7487	7764	7640	8078
NERC-MEXICO											
WSCC	1100	1079	1207	1600	1837	1833	1748	2092	2461	2868	3294
TOTAL(MEXICO)	1100	1079	1207	1600	1837	1833	1748	2092	2461	2868	3294
NERC-TOTAL	110076	93234	90080	87573	80933	89514	95902	103952	107870	113527	122094

APPENDIX B

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL-COMBUSTION TURBINE[a] - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	36	172	238	227	188	244	225	224	287	437	525
ERCOT	8	33	16	29	32	41	53	49	49	69	62
MAAC	779	368	232	214	122	92	90	117	169	236	251
MAIN	19	36	45	50	57	65	85	67	105	112	180
CMNWLTH EDISON	14	0	5	5	10	10	15	20	35	45	65
EAST MISSOURI	0	25	20	25	30	39	49	25	41	32	73
S CENT ILLINOIS	0	1	1	1	2	2	3	3	5	7	12
WIS-UPPER MICH	5	10	19	19	15	14	18	19	24	28	30
MAPP	376	368	392	420	444	459	474	478	503	510	546
NPCC	687	1501	1429	584	366	299	129	250	350	291	400
NEW YORK	486	1145	1262	541	301	261	43	93	155	74	140
NEPOOL	201	356	167	43	65	38	86	157	195	217	260
SERC	363	716	357	507	615	652	898	832	833	814	1280
FLORIDA	299	70	83	187	302	469	583	487	349	306	420
SOUTHERN	5	71	7	41	23	19	20	10	10	18	30
TVA	29	469	166	110	139	62	89	90	135	163	257
VACAR	30	106	101	169	151	102	206	245	339	327	573
SPP	11	49	62	88	121	98	123	118	133	134	182
SOUTHEAST	1	13	24	51	21	27	48	44	58	93	126
WEST CENTRAL	1	0	0	0	0	0	0	0	0	0	0
NORTHERN	9	36	38	37	100	71	75	74	75	41	56
WSCC	124	1220	1397	1824	2064	2017	2113	2332	2343	2310	2342
NW POOL	1	0	0	0	0	0	0	176	176	176	176
ROCKY MT-AREA	1	4	3	3	3	4	4	6	8	7	7
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	122	1216	1394	1821	2061	2013	2109	2150	2159	2127	2159
TOTAL(U.S.)	2403	4463	4168	3943	4009	3967	4190	4467	4772	4913	5768
NERC-CANADA											
MAPP	19	20	19	19	19	19	19	19	19	20	20
NPCC	22	54	103	253	307	209	223	148	92	90	154
NEW BRUNSWICK	2	2	2	1	1	1	2	1	4	2	3
NOVA SCOTIA	9	39	88	239	293	195	213	129	53	41	72
ONTARIO	11	13	13	13	13	13	8	18	35	47	79
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	41	74	122	272	326	228	242	167	111	110	174
NERC-MEXICO											
WSCC	8	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	8	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	2452	4537	4290	4215	4335	4195	4432	4634	4883	5023	5942

---

[a] Includes diesel units.

North American
Electric
Reliability
Council

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OIL-COMBINED CYCLE - Millions kWh

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	1	0	0	0	0	0	0	0	0	0	0
MAAC	378	326	237	173	109	159	119	207	226	198	267
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	2	2	2	3	3	3	4	4	4	5	5
NPCC	546	571	308	112	80	73	159	225	257	274	344
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	546	571	308	112	80	73	159	225	257	274	344
SERC	5	4	4	7	8	133	772	2170	2405	2464	3590
FLORIDA	5	4	4	7	8	11	552	1756	1867	1853	2639
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	122	220	414	538	611	951
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	3	4	2	2	2	2	2	2	2	2
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	3	4	2	2	2	2	2	2	2	2
TOTAL(U.S.)	932	906	555	297	202	370	1056	2608	2894	2943	4208
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	932	906	555	297	202	370	1056	2608	2894	2943	4208

APPENDIX B

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GAS[a] - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	74	201	250	157	125	125	149	142	167	192	261
ERCOT	89232	89598	77122	72805	76227	77962	82268	80100	83907	87262	83659
MAAC	7835	11255	9621	6341	5366	5610	5319	6423	7309	8845	9977
MAIN	303	230	199	159	174	226	354	435	571	649	890
CMNWLTH EDISON	127	105	55	10	20	30	40	45	85	105	150
EAST MISSOURI	57	45	52	48	49	67	81	32	48	72	109
S CENT ILLINOIS	18	39	72	76	85	71	164	212	241	282	383
WIS-UPPER MICH	101	41	20	25	20	58	69	146	197	190	248
MAPP	348	373	407	502	565	605	616	579	642	670	697
NPCC	21354	14899	13920	11760	10809	9860	9029	9029	9134	9156	9184
NEW YORK	16392	14180	13230	11340	10400	9450	8500	8500	8500	8500	8500
NEPOOL	4962	719	690	420	409	410	529	529	634	656	684
SERC	18210	20812	20606	21161	22140	23180	24955	25196	25227	25124	25282
FLORIDA	16854	19523	19682	19581	20253	21004	22394	22593	22725	22720	22959
SOUTHERN	1118	1093	715	889	786	806	896	882	914	1014	912
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	238	196	209	691	1101	1370	1665	1721	1588	1390	1411
SPP	62583	59238	61038	59568	56612	60940	62972	64295	68055	66981	68364
SOUTHEAST	38303	36332	37994	36259	32263	35132	35632	35868	38178	35994	35194
WEST CENTRAL	23527	21787	21848	22153	22879	24445	25598	26094	27572	28337	30205
NORTHERN	753	1119	1196	1156	1470	1363	1742	2333	2305	2650	2965
WSCC	66639	44289	33472	33780	30986	35856	41822	46295	49567	55459	58770
NW POOL	117	588	591	587	587	615	3319	3661	3626	3655	3942
ROCKY MT-AREA	445	259	263	282	290	306	346	373	450	391	250
ARIZ-N.MEX	4550	4155	4667	3852	3155	3507	4119	4651	4987	5258	5570
CALIF-SO.NEV	61527	39287	27951	29059	26954	31428	34038	37610	40504	46155	49008
TOTAL(U.S.)	266578	240895	216635	206233	203004	214364	227484	232494	244579	254338	257084
NERC-CANADA											
MAPP	203	203	203	295	427	428	255	260	125	118	131
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	1219	3628	2874	2992	3242	4232	5745	6084	6967	8072	8025
TOTAL(CANADA)	1422	3831	3077	3287	3669	4660	6000	6344	7092	8190	8156
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	268000	244726	219712	209520	206673	219024	233484	238838	251671	262528	265240

---

[a] Gas-fired steam, combustion turbine (and diesel), and combined cycle units.

North American
Electric
Reliability
Council

APPENDIX B

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GAS-STEAM - Millions kWh

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	47	47	47	47	47	47	47	47	47	47	47
ERCOT	86369	84810	72753	68427	71624	71751	75983	72439	75834	78543	75168
MAAC	6237	8866	7033	5499	4788	4968	4741	5561	6232	6736	7616
MAIN	265	190	174	132	142	147	241	232	261	318	419
CMNWLTH EDISON	116	100	45	0	0	0	0	0	0	0	0
EAST MISSOURI	57	44	51	47	48	66	80	31	47	71	108
S CENT ILLINOIS	15	38	70	73	81	67	145	181	193	224	286
WIS-UPPER MICH	77	8	8	12	13	14	16	20	21	23	25
MAPP	304	283	317	415	456	493	482	441	480	507	556
NPCC	19967	13903	13151	11418	10476	9526	8588	8591	8602	8608	8613
NEW YORK	15964	13780	13030	11340	10400	9450	8500	8500	8500	8500	8500
NEPOOL	4003	123	121	78	76	76	88	91	102	108	113
SERC	15270	18360	17973	17843	18309	18928	19727	17515	17857	17802	17624
FLORIDA	14146	17377	17342	17119	17748	18456	19198	17055	17388	17305	17094
SOUTHERN	892	833	462	635	471	456	512	447	456	488	519
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	232	150	169	89	90	16	17	13	13	9	11
SPP	58604	56198	57382	55697	53124	57083	59012	60332	63929	62775	63707
SOUTHEAST	37984	36271	37940	36185	32217	35056	35566	35798	38094	35878	35067
WEST CENTRAL	19901	18836	18269	18383	19487	20718	21780	22287	23648	24494	26007
NORTHERN	719	1091	1173	1129	1420	1309	1666	2247	2187	2403	2633
WSCC	63001	41289	31005	31698	29141	33832	36164	39632	40976	45355	48425
NW POOL	107	588	591	587	587	615	613	613	578	589	894
ROCKY MT-AREA	441	253	258	277	287	297	307	317	303	279	229
ARIZ-N.MEX	2233	2203	3032	2607	2115	2315	2654	3270	3462	3714	3938
CALIF-SO.NEV	60220	38245	27124	28227	26152	30605	32590	35432	36633	40773	43364
TOTAL(U.S.)	250064	223946	199835	191176	188107	196775	204985	204790	214218	220691	222175
NERC-CANADA											
MAPP	114	114	114	147	174	165	121	129	59	58	63
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	657	3188	2389	2343	2593	3537	4987	5095	5530	6515	6396
TOTAL(CANADA)	771	3302	2503	2490	2767	3702	5108	5224	5589	6573	6459
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	250835	227248	202338	193666	190874	200477	210093	210014	219807	227264	228634

APPENDIX B

ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GAS-COMBUSTION TURBINE[a] - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	27	154	203	110	78	78	102	95	120	145	214
ERCOT	228	446	242	518	693	672	801	688	783	1112	1105
MAAC	1047	1629	2036	438	324	270	301	379	549	683	756
MAIN	38	40	25	27	32	79	113	203	310	331	471
CMNWLTH EDISON	11	5	10	10	20	30	40	45	85	105	150
EAST MISSOURI	0	1	1	1	1	1	1	1	1	1	1
S CENT ILLINOIS	3	1	2	3	4	4	19	31	48	58	97
WIS-UPPER MICH	24	33	12	13	7	44	53	126	176	167	223
MAPP	44	90	90	87	109	112	134	138	162	163	141
NPCC	451	423	219	5	5	3	6	10	14	15	19
NEW YORK	428	400	200	0	0	0	0	0	0	0	0
NEPOOL	23	23	19	5	5	3	6	10	14	15	19
SERC	424	450	501	564	638	810	658	948	870	982	759
FLORIDA	192	190	248	310	323	460	274	513	412	456	366
SOUTHERN	226	260	253	254	315	350	384	435	458	526	393
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	6	0	0	0	0	0	0	0	0	0	0
SPP	74	43	36	28	51	55	79	90	118	244	328
SOUTHEAST	1	0	0	1	0	0	1	0	1	1	1
WEST CENTRAL	41	14	13	4	3	4	4	7	8	10	13
NORTHERN	32	29	23	23	48	51	74	83	109	233	314
WSCC	166	425	441	421	354	406	1116	1008	1040	1093	991
NW POOL	10	0	0	0	0	0	648	648	648	650	648
ROCKY MT-AREA	4	6	5	5	3	9	39	56	147	112	21
ARIZ-N.MEX	36	110	119	120	83	100	157	149	119	171	160
CALIF-SO.NEV	116	309	317	296	268	297	272	155	126	160	162
TOTAL(U.S.)	2499	3700	3793	2198	2284	2485	3310	3559	3966	4768	4784
NERC-CANADA											
MAPP	89	89	89	148	253	263	134	131	66	60	68
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	562	440	485	649	649	695	758	989	1437	1557	1629
TOTAL(CANADA)	651	529	574	797	902	958	892	1120	1503	1617	1697
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	3150	4229	4367	2995	3186	3443	4202	4679	5469	6385	6481

---

[a] Includes diesel units.

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GAS-COMBINED CYCLE - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	2635	4342	4127	3860	3910	5539	5484	6973	7290	7607	7386
MAAC	551	760	552	404	254	372	277	483	528	1426	1605
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	936	573	550	337	328	331	435	428	518	533	552
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	936	573	550	337	328	331	435	428	518	533	552
SERC	2516	2002	2132	2754	3193	3442	4570	6733	6500	6340	6899
FLORIDA	2516	1956	2092	2152	2182	2088	2922	5025	4925	4959	5499
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	46	40	602	1011	1354	1648	1708	1575	1381	1400
SPP	3905	2997	3620	3843	3437	3802	3881	3873	4008	3962	4329
SOUTHEAST	318	61	54	73	46	76	65	70	83	115	126
WEST CENTRAL	3585	2937	3566	3766	3389	3723	3814	3800	3916	3833	4185
NORTHERN	2	-1	0	4	2	3	2	3	9	14	18
WSCC	3472	2575	2026	1661	1491	1618	4542	5655	7551	9011	9354
NW POOL	0	0	0	0	0	0	2058	2400	2400	2416	2400
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	2281	1842	1516	1125	957	1092	1308	1232	1406	1373	1472
CALIF-SO.NEV	1191	733	510	536	534	526	1176	2023	3745	5222	5482
TOTAL(U.S.)	14015	13249	13007	12859	12613	15104	19189	24145	26395	28879	30125
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	14015	13249	13007	12859	12613	15104	19189	24145	26395	28879	30125

North American
Electric
Reliability
Council

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY GEOTHERMAL - Millions kWh

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	12568	14083	15037	16097	16452	17387	17471	17752	19060	19334	19595
NW POOL	162	154	146	159	159	160	159	157	159	159	159
ROCKY MT-AREA	0	0	0	0	0	4	53	53	53	53	53
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	12406	13929	14891	15938	16293	17223	17259	17542	18848	19122	19383
TOTAL(U.S.)	12568	14083	15037	16097	16452	17387	17471	17752	19060	19334	19595
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	4078	4268	4374	4271	4300	4600	5000	5000	5000	5000	5000
TOTAL(MEXICO)	4078	4268	4374	4271	4300	4600	5000	5000	5000	5000	5000
NERC-TOTAL	16646	18351	19411	20368	20752	21987	22471	22752	24060	24334	24595

North American
Electric
Reliability
Council

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY OTHER (UTILITY) FUELS - Millions kWh

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	208	367	366	606	624	659	655	661	675
MAAC[a]	1083	1013	931	913	923	943	924	968	980	975	985
MAIN	0	569	564	566	565	563	563	568	566	570	564
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	569	564	566	565	563	563	568	566	570	564
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP[b]	85	317	320	437	446	445	447	453	469	444	454
NPCC	156	59	33	14	7	9	17	21	24	26	33
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	156	59	33	14	7	9	17	21	24	26	33
SERC	494[c]	175[c]	1650[c]	0	448[c,d]	-82[d]	-96[d]	-120[d]	-130[d]	-185[d]	-11[d]
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	494	175	1650	0	448[d]	-82[d]	-96[d]	-129[d]	-147[d]	-205[d]	-97[d]
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	9	17	20	86
SPP	1561	1285	2020	2027	2036	1962	2086	2229	2226	2131	2235
SOUTHEAST	941	965	1086	1088	1101	1018	1093	1102	1092	1008	1102
WEST CENTRAL	620	320	934	939	935	944	856	894	901	903	900
NORTHERN	0	0	0	0	0	0	137	233	233	220	233
WSCC[e]	268	11492	15932	19487	20168	21172	22082	25741	29352	32052	34939
NW POOL[e]	374	473	813	837	837	839	837	5016	7138	8889	12070
ROCKY MT-AREA	0	552	768	1222	2189	2195	2244	2261	2277	2283	2315
ARIZ-N.MEX	0	0	0	0	4	4	4	4	22	96	170
CALIF-SO.NEV	-106	10467	14351	17428	17138	18134	18997	18460	19915	20784	20384
TOTAL(U.S.)	3647	14910	21658	23811	24959	25618	26647	30519	34142	36674	39874
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	614	0	36	93	180	285	384	2476	3534	3742	4936
TOTAL(CANADA)	614	0	36	93	180	285	384	2476	3534	3742	4936
NERC-MEXICO											
WSCC	-65[f]	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	-65	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	4196	14910	21694	23904	25139	25903	27031	32995	37676	40416	44810

[a] Includes Bethlehem Steel and Delaware City 1&2 generation.

[b] Steam units using wood or refuse derived fuel, and a combined cycle unit using waste heat.

[c] Energy from units before units go commercial.

[d] Compressed air energy storage units.

[e] The U.S. portion of the Northwest Power Pool Area is projecting an energy deficiency under adverse hydro conditions for 1994 through 1997. Included are exports that would be necessary from systems outside NWPP-U.S. from 1994 to 1997: 4179, 6301, 8050, and 11,233 million kWh, respectively.

[f] Energy transfer balance between WSCC-Mexico and WSCC-U.S.

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED BY NON-UTILITY GENERATORS(NUGs)[a] - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	806	1432	1950	5705	9266	11109	12100	12719	13414	15068	15240
ERCOT	20790	20731	24124	25502	26916	27962	30298	29720	27285	28120	27537
MAAC	1001	3352	7517	11939	17530	21444	23633	24405	24696	25036	26044
MAIN	2	22	22	22	22	22	22	22	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	2	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	22	22	22	22	22	22	22	0	0	0
MAPP	74	160	195	377	377	377	370	370	369	369	369
NPCC	4072	6647	9727	19403	27754	28887	29971	31605	32092	32358	32432
NEW YORK	1850	2392	3530	10517	15517	16000	17121	18655	19062	19278	19355
NEPOOL	2222	4255	6197	8886	12237	12887	12850	12950	13030	13080	13077
SERC	6123	7639	9391	11902	13045	13193	15061	16703	18162	20226	22607
FLORIDA	2477	1865	2745	3823	3910	4518	5839	6025	6206	6462	6635
SOUTHERN	163	202	178	178	178	178	178	178	178	178	178
TVA	856	762	788	745	745	219	0	0	0	0	0
VACAR	2627	4810	5680	7156	8212	8278	9044	10500	11778	13586	15794
SPP	933	2275	2705	3016	4724	4728	4724	4726	4730	4739	4740
SOUTHEAST	724	2058	2054	2054	2054	2058	2054	2054	2054	2058	2054
WEST CENTRAL	209	217	651	962	2670	2670	2670	2670	2670	2670	2670
NORTHERN	0	0	0	0	0	0	0	2	6	11	16
WSCC	18866	13078	21559	24556	25044	25150	25217	25217	25217	25222	25217
NW POOL	1889	1862	2382	2751	2792	2884	2943	2943	2943	2948	2943
ROCKY MT-AREA	152	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	1884	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	14941	11216	19177	21805	22252	22266	22274	22274	22274	22274	22274
TOTAL(U.S.)	52667	55336	77190	102422	124678	132872	141396	145487	145965	151138	154186
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	98	270	388	580	760	952	1155	1365	1576	1786	1996
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	98	270	388	580	760	952	1155	1365	1576	1786	1996
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	98	270	388	580	760	952	1155	1365	1576	1786	1996
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	52765	55606	77578	103002	125438	133824	142551	146852	147541	152924	156182

---

[a] Non-utility generating capacity includes the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak.

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY REQUIREMENTS (LOAD) FOR PUMPED STORAGE - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	5060	5635	5440	5421	5340	5521	5489	5760	5981	6040	6456
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	2891	2465	2305	2569	2696	2857	2845	2941	2967	2943	2893
MAIN	701	460	36	44	93	121	131	85	127	128	161
CMNWLTH EDISON	664	420	0	0	0	0	0	0	0	0	0
EAST MISSOURI	37	40	36	44	93	121	131	85	127	128	161
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	4426	3234	3438	3210	3596	3307	3425	3389	3411	3140	3264
NEW YORK	2468	1169	1149	1153	1242	1234	1213	1138	1142	950	840
NEPOOL	1958	2065	2289	2057	2354	2073	2212	2251	2269	2190	2424
SERC	7035	5392	5064	5181	5831	5056	5867	5915	6447	7453	8170
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	811	278	278	277	278	277	243	209	167	911	869
TVA	2244	2083	1459	1255	1316	1063	1187	1213	1482	1517	1797
VACAR	3980	3031	3327	3649	4237	3716	4437	4493	4798	5025	5504
SPP	179	145	145	145	145	145	145	145	145	145	145
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	179	145	145	145	145	145	145	145	145	145	145
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	1887	1508	1947	1963	1934	1546	1868	1777	1773	2113	2463
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	351	329	427	416	454	554	554	554	554	554	554
ARIZ-N.MEX	264	259	275	280	277	247	214	201	237	319	329
CALIF-SO.NEV	1272	920	1245	1267	1203	745	1100	1022	982	1240	1580
TOTAL(U.S.)	22179	18839	18375	18533	19635	18553	19770	20012	20851	21962	23552
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	22179	18839	18375	18533	19635	18553	19770	20012	20851	21962	23552

APPENDIX B
ACTUAL AND PROJECTED ELECTRICAL ENERGY PRODUCED (OUTPUT) BY PUMPED STORAGE - Millions kWh

North American Electric Reliability Council	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	3877	4218	4131	4049	3991	4125	4100	4284	4450	4485	4795
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	1987	1688	1572	1756	1842	1954	1945	2012	2030	2014	1980
MAIN	461	311	20	25	50	64	70	45	69	68	87
CMNWLTH EDISON	451	290	0	0	0	0	0	0	0	0	0
EAST MISSOURI	10	21	20	25	50	64	70	45	69	68	87
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	3087	2285	2410	2249	2525	2318	2401	2377	2396	2207	2292
NEW YORK	1646	818	804	807	869	864	849	796	799	665	588
NEPOOL	1441	1467	1606	1442	1656	1454	1552	1581	1597	1542	1704
SERC	5471	4213	3969	4034	4529	3935	4555	4596	5001	5469	5988
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	583	209	208	208	208	208	182	157	126	358	337
TVA	1760	1613	1130	972	1019	823	919	940	1148	1217	1391
VACAR	3128	2391	2631	2854	3302	2904	3454	3499	3727	3894	4260
SPP	98	75	75	75	75	75	75	75	75	75	75
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	98	75	75	75	75	75	75	75	75	75	75
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC[a]	2441	2841	3432	3420	3380	3311	3353	3290	3230	3456	3690
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	253	249	309	303	329	400	400	400	400	400	400
ARIZ-N.MEX	185	181	193	196	194	173	150	141	166	223	230
CALIF-SO.NEV	2003	2411	2930	2921	2857	2738	2803	2749	2664	2833	3060
TOTAL(U.S.)	17422	15631	15609	15608	16392	15782	16499	16679	17251	17774	18907
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	17422	15631	15609	15608	16392	15782	16499	16679	17251	17774	18907

---

[a] Pumped storage generation (output) is greater than pumped storage load (input) due to pumped storage facilities being in combination with California reservoirs.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
WESTERN LIGNITE[b] (STEAM) - 1000's TONS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR[c]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
ERCOT	39574	42578	41744	41680	42269	42199	42798	46374	49499	51139	57610
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	18406	22951	22942	23689	23264	23754	24286	24936	24532	25362	25018
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	4601	4608	4669	4919	5049	5129	4991	5192	4948	5135	5200
SOUTHEAST	1268	1375	1375	1535	1600	1600	1400	1600	1600	1535	1600
WEST CENTRAL	3333	3233	3294	3384	3449	3529	3591	3592	3348	3600	3600
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	62581	70137	69355	70288	70582	71082	72075	76502	78979	81636	87828
NERC-CANADA											
MAPP	8489	8093	8093	8447	8761	9150	9514	9668	9769	9973	10254
NPCC	1741	1203	1303	1310	1182	1188	1581	1701	1693	1800	1990
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO[d]	1741	1203	1303	1310	1182	1188	1581	1701	1693	1800	1990
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	10230	9296	9396	9757	9943	10338	11095	11369	11462	11773	12244
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	72811	79433	78751	80045	80525	81420	83170	87871	90441	93409	100072

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Coal mined west of the Mississippi River.
[c] Coal sources indeterminant for ECAR. See Table 24 for ECAR total coal figures.
[d] Lignite from western Canada.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
WESTERN COAL[b] (STEAM) - 1000's TONS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR[c]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
ERCOT	20281	19164	20131	21465	21764	23325	23000	24623	24388	25008	27366
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	20354	20802	20399	24201	21904	23805	24086	24181	25241	25557	25719
CMNWLTH EDISON	10631	7430	6580	7300	6610	7530	7960	7920	8550	8950	8815
EAST MISSOURI	390	1588	1518	4538	2888	3400	2453	2357	2610	2317	2417
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	9333	11784	12301	12363	12406	12875	13673	13904	14081	14290	14487
MAPP	30673	26872	26141	32010	31563	32210	32459	32877	33086	35126	35608
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	4427	3228	3495	3583	3396	3460	3587	3602	3706	3420	3427
FLORIDA	400	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4027	3228	3495	3583	3396	3460	3587	3602	3706	3420	3427
SPP	67925	70256	69555	71257	72107	73013	73897	75176	76378	77033	78154
SOUTHEAST	19178	19807	19565	18594	18774	19716	19382	19867	20004	19582	20006
WEST CENTRAL	25631	26482	26556	28301	28303	28727	29240	30225	30826	31561	32118
NORTHERN	23116	23967	23434	24362	25030	24570	25275	25084	25548	25890	26030
WSCC[d]	92808	88151	92347	93300	96861	98409	100381	100787	101879	104729	105348
NW POOL	36162	35809	38312	39088	40392	41272	42650	42561	42402	42605	42293
ROCKY MT-AREA	18951	16471	17064	17161	17383	17597	17857	17625	17726	19496	19980
ARIZ-N.MEX[d]	21769	20840	22421	23096	24112	24561	25285	26028	26833	27672	27815
CALIF-SO.NEV	15926	15031	14550	13955	14974	14979	14589	14573	14918	14956	15260
TOTAL(U.S.)	236468	228473	232068	245816	247595	254222	257410	261246	264678	270873	275622
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	2829	2398	2347	2243	2126	2404	2450	2450	2450	2450	2450
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO[e]	2829	2398	2347	2243	2126	2404	2450	2450	2450	2450	2450
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	20467	20140	20830	21900	23002	23906	24429	25397	26423	27996	29394
TOTAL(CANADA)	23296	22538	23177	24143	25128	26310	26879	27847	28873	30446	31844
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	259764	251011	255245	269959	272723	280532	284289	289093	293551	301319	307466

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).

[b] Coal mined west of the Mississippi River.

[c] Coal sources indeterminant for ECAR. See Table 24 for ECAR total coal figures.

[d] Includes coal requirements for the 360 MW Springerville 1 coal-fired non-utility generator in the Arizona-New Mexico Power Area of WSCC-U.S.

[e] Coal from western Canada.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
OTHER COAL (STEAM) - 1000's TONS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR[b]	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	40004	38999	36543	37906	36720	38068	38531	39758	40137	41670	41272
MAIN	33621	29776	30884	28858	29798	30358	30978	31339	31832	32190	31721
CMNWLTH EDISON	1661	2180	1990	2110	2090	2110	2310	2330	2280	2470	2365
EAST MISSOURI	9917	8695	9316	6981	8038	8702	8958	8781	9349	9501	9135
S CENT ILLINOIS	15679	13986	14661	14567	14368	14247	14953	15398	15355	15217	15190
WIS-UPPER MICH	6364	4915	4917	5200	5302	5299	4757	4830	4848	5002	5031
MAPP	3912	3152	2895	3060	3189	3163	3023	3043	3164	3251	3264
NPCC	16156	16296	16613	15130	14716	15352	15501	15813	16233	16722	17143
NEW YORK	9939	10168	10939	9990	10065	10497	10525	10605	10886	11380	11635
NEPOOL	6217	6128	5674	5140	4651	4855	4976	5208	5347	5342	5508
SERC	133491	135057	133044	135407	136922	137827	137246	137041	140788	147887	150424
FLORIDA	18081	21645	22700	22902	22869	23041	23314	23209	25609	27945	27928
SOUTHERN	49740	48258	47800	49926	50576	51358	49884	47922	48296	49904	51609
TVA	33527	33771	31056	29420	29117	26528	27157	26473	27671	27632	29173
VACAR	32143	31383	31488	33159	34360	36900	36891	39437	39212	42406	41714
SPP	4708	3584	4167	4282	4137	4558	4531	4710	5007	5344	5098
SOUTHEAST	8	1	1	1	1	1	1	1	1	1	1
WEST CENTRAL	237	267	491	437	380	383	330	354	358	360	359
NORTHERN	4463	3316	3675	3844	3756	4174	4200	4355	4648	4983	4738
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	231892	226864	224146	224643	225482	229326	229810	231704	237161	247064	248922
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	11500	10351	8233	8562	8055	7283	7945	9645	11052	12687	14125
NEW BRUNSWICK[c]	580	554	542	553	551	543	1008	1848	1993	2463	2480
NOVA SCOTIA[c]	2289	2731	2867	2981	3096	3289	3373	3665	3983	4156	4216
ONTARIO[d]	8631	7066	4824	5028	4408	3451	3564	4132	5076	6068	7429
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	11500	10351	8233	8562	8055	7283	7945	9645	11052	12687	14125
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	243392	237215	232379	233205	233537	236609	237755	241349	248213	259751	263047

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Coal sources indeterminant for ECAR. See Table 24 for ECAR total coal figures.
[c] Coal from Canada.
[d] Bituminous coal from the United States.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
TOTAL DISTILLATE OIL[b,c] - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1761	1730	1675	1665	1665	1665	1665	1665	1665	1665	1665
ERCOT	464	747	567	706	602	619	675	634	633	785	663
MAAC	3808	1602	1110	987	741	767	706	952	1072	1210	1382
MAIN	621	402	528	465	639	424	602	448	579	659	932
CMNWLTH EDISON	299	5	15	10	30	35	45	55	100	135	190
EAST MISSOURI	82	182	299	282	436	205	375	202	276	314	503
S CENT ILLINOIS	123	89	80	85	84	96	92	96	107	112	140
WIS-UPPER MICH	117	126	134	88	89	88	90	95	96	98	99
MAPP	317	258	278	310	345	359	380	371	397	405	463
NPCC	2811	4638	4248	2045	1436	1338	1050	1415	1678	1584	1904
NEW YORK	1206	2746	3077	1419	876	784	302	423	564	384	520
NEPOOL	1605	1892	1171	626	560	554	748	992	1114	1200	1384
SERC	2809	2937	2138	2215	2198	2675	6038	5785	6820	5862	7753
FLORIDA	1021	210	233	392	641	979	2015	3397	3282	3173	4519
SOUTHERN	325	417	301	374	336	330	362	307	312	301	295
TVA	331	1400	700	559	620	421	488	482	595	655	879
VACAR	1132	910	904	890	601	945	3173	1599	2631	1733	2060
SPP	456	436	498	573	648	605	670	670	678	746	893
SOUTHEAST	191	99	134	202	126	144	196	187	219	313	401
WEST CENTRAL	98	86	92	92	91	91	91	91	91	104	125
NORTHERN	167	251	272	279	431	370	383	392	368	329	367
WSCC	665	511	489	491	468	469	469	822	825	823	825
NW POOL	407	0	0	0	0	0	0	352	352	352	352
ROCKY MT-AREA	26	30	28	34	34	35	35	39	42	40	39
ARIZ-N.MEX	10	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	222	481	461	457	434	434	434	431	431	431	434
TOTAL(U.S.)	13712	13261	11531	9457	8742	8921	12255	12762	14347	13739	16480
NERC-CANADA											
MAPP	38	24	24	24	24	24	24	24	24	24	24
NPCC	319	367	346	367	345	336	344	387	442	516	606
NEW BRUNSWICK	37	5	4	3	2	1	4	3	9	6	7
NOVA SCOTIA	49	84	84	80	82	96	98	112	120	123	119
ONTARIO	233	278	258	284	261	239	242	272	313	387	480
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	357	391	370	391	369	360	368	411	466	540	630
NERC-MEXICO											
WSCC	24	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	24	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	14093	13652	11901	9848	9111	9281	12623	13173	14813	14279	17110

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).

[b] Includes No.1 and No.2 oil, kerosene, and jet fuel.

[c] Used in steam, combustion turbine (and diesel), and combined cycle units and in coal burning plants for startup and flame stabilization.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
DISTILLATE OIL[b] (STEAM) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1613	1600	1550	1550	1550	1550	1550	1550	1550	1550	1550
ERCOT	444	537	535	537	536	533	531	534	533	535	535
MAAC	1425	286	235	275	309	311	316	367	347	403	432
MAIN	554	335	420	362	452	319	427	324	360	422	530
CMNWLTH EDISON	256	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	73	141	231	200	294	151	261	150	180	239	336
S CENT ILLINOIS	123	85	74	78	75	86	82	85	90	91	101
WIS-UPPER MICH	102	109	115	84	83	82	84	89	90	92	93
MAPP	183	188	184	224	224	229	237	241	242	254	258
NPCC	501	607	554	432	355	421	427	461	481	518	527
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	501	607	554	432	355	421	427	461	481	518	527
SERC	1347	1060	1039	1020	1011	1017	1029	999	1013	981	982
FLORIDA	455	76	78	78	81	96	103	104	99	92	94
SOUTHERN	288	263	277	278	278	278	278	278	278	279	277
TVA	266	359	331	315	312	285	290	283	295	294	309
VACAR	338	362	353	349	340	358	358	334	341	316	302
SPP	416	330	341	353	353	354	360	363	354	377	406
SOUTHEAST	189	69	76	78	75	78	78	78	75	83	89
WEST CENTRAL	97	86	92	92	91	90	90	90	90	102	123
NORTHERN	130	175	173	183	187	186	192	195	189	192	194
WSCC	437	24	24	30	30	30	30	30	30	30	30
NW POOL	405	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	22	24	24	30	30	30	30	30	30	30	30
ARIZ-N.MEX	10	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	6920	4967	4882	4783	4820	4764	4907	4869	4910	5070	5250
NERC-CANADA											
MAPP	15	14	14	14	14	14	14	14	14	14	14
NPCC	210	235	214	240	217	195	215	220	240	250	250
NEW BRUNSWICK	25	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	185	235	214	240	217	195	215	220	240	250	250
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	225	249	228	254	231	209	229	234	254	264	264
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	7145	5216	5110	5037	5051	4973	5136	5103	5164	5334	5514

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Includes No.1 and No.2 oil, kerosene, and jet fuel.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
DISTILLATE OIL[b] (COMBUSTION TURBINE)[c] - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	148	130	125	115	115	115	115	115	115	115	115
ERCOT	20	210	32	169	66	86	144	100	100	250	128
MAAC	2077	800	500	437	260	203	202	257	366	494	527
MAIN	67	67	108	103	187	105	175	124	219	237	402
CMNWLTH EDISON	43	5	15	10	30	35	45	55	100	135	190
EAST MISSOURI	9	41	68	82	142	54	114	52	96	75	167
S CENT ILLINOIS	0	4	6	7	9	10	10	11	17	21	39
WIS-UPPER MICH	15	17	19	4	6	6	6	6	6	6	6
MAPP	130	66	90	80	115	124	135	122	147	141	195
NPCC	1676	3351	3361	1492	987	849	448	690	896	753	962
NEW YORK	1206	2746	3077	1419	876	784	302	423	564	384	520
NEPOOL	470	605	284	73	111	65	146	267	332	369	442
SERC	1443	1850	1077	1159	1155	1628	4211	2270	3129	2163	2789
FLORIDA	557	126	148	302	545	862	1130	875	616	535	797
SOUTHERN	37	154	24	96	58	52	84	29	34	22	18
TVA	65	1041	369	244	308	136	198	199	300	361	570
VACAR	784	529	536	517	244	578	2799	1167	2179	1245	1404
SPP	40	106	157	220	295	251	310	307	324	369	487
SOUTHEAST	2	30	58	124	51	66	118	109	144	230	312
WEST CENTRAL	1	0	0	0	0	1	1	1	1	2	2
NORTHERN	37	76	99	96	244	184	191	197	179	137	173
WSCC	222	487	465	461	438	439	439	792	795	793	795
NW POOL	2	0	0	0	0	0	0	352	352	352	352
ROCKY MT-AREA	4	6	4	4	4	5	5	9	12	10	9
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	216	481	461	457	434	434	434	431	431	431	434
TOTAL(U.S.)	5823	7067	5915	4236	3618	3800	6179	4777	6091	5315	6400
NERC-CANADA											
MAPP	23	10	10	10	10	10	10	10	10	10	10
NPCC	109	132	132	127	128	141	129	167	202	266	356
NEW BRUNSWICK	12	5	4	3	2	1	4	3	9	6	7
NOVA SCOTIA	49	84	84	80	82	96	98	112	120	123	119
ONTARIO	48	43	44	44	44	44	27	52	73	137	230
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	132	142	142	137	138	151	139	177	212	276	366
NERC-MEXICO											
WSCC	24	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	24	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	5979	7209	6057	4373	3756	3951	6318	4954	6303	5591	6766

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Includes No.1 and No.2 oil, kerosene, and jet fuel.
[c] Includes diesel units.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
DISTILLATE OIL[b] (COMBINED CYCLE) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	306	516	375	275	172	253	188	328	359	313	423
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	4	4	4	6	6	6	8	8	8	10	10
NPCC	634	680	333	121	94	68	175	264	301	313	415
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	634	680	333	121	94	68	175	264	301	313	415
SERC	19	27	22	36	32	30	798	2516	2678	2718	3982
FLORIDA	9	8	7	12	15	21	782	2418	2567	2546	3628
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	10	19	15	24	17	9	16	98	111	172	354
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	6	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	6	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	969	1227	734	438	304	357	1169	3116	3346	3354	4830
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	969	1227	734	438	304	357	1169	3116	3346	3354	4830

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Includes No.1 and No.2 oil, kerosene, and jet fuel.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
TOTAL RESIDUAL OIL[b,c] - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1206	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
ERCOT	341	396	396	396	396	396	396	396	396	396	396
MAAC	22933	15800	9764	14463	9210	10749	8852	13563	15629	16809	19096
MAIN	3459	444	515	764	687	1304	1572	1803	2692	3099	4044
CMNWLTH EDISON	3105	405	455	690	610	1220	1380	1510	2360	2695	3440
EAST MISSOURI	226	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	128	39	60	74	77	84	192	293	332	404	604
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	64	40	44	45	42	43	50	45	59	59	89
NPCC	94502	107975	103211	85437	73449	79943	84410	87392	92241	99129	102851
NEW YORK	50943	49153	48942	42840	38470	38344	42430	42312	45236	48537	51572
NEPOOL	43559	58822	54269	42597	34979	41599	41980	45080	47005	50592	51279
SERC	37047	19589	22205	28521	32877	38309	45445	49358	47539	47886	51215
FLORIDA	32565	18729	21519	27979	32229	36854	43334	46278	44912	44636	48022
SOUTHERN	206	188	116	166	158	52	73	45	51	50	22
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4276	672	570	376	490	1403	2038	3035	2576	3200	3171
SPP	429	717	73	86	399	396	81	705	712	496	1730
SOUTHEAST	361	663	13	31	338	333	16	628	623	373	1550
WEST CENTRAL	1	11	11	11	11	11	11	11	11	22	44
NORTHERN	67	43	49	44	50	52	54	66	78	101	136
WSCC	2939	1508	1658	1979	1967	2055	2152	1861	1651	1812	1885
NW POOL	0	0	0	0	0	0	32	32	32	32	32
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	69	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	2870	1508	1658	1979	1967	2055	2120	1829	1619	1780	1853
TOTAL(U.S.)	162920	147569	138966	132791	120127	134295	144058	156223	162019	170786	182406
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	7883	5952	8029	9815	11221	12148	12716	11598	12001	11794	12472
NEW BRUNSWICK	5529	4900	6520	7545	8848	10155	10765	10187	11310	11184	11515
NOVA SCOTIA	2154	903	1418	2179	2285	1902	1901	1244	402	250	373
ONTARIO	200	149	91	91	88	91	50	167	289	360	584
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	7883	5952	8029	9815	11221	12148	12716	11598	12001	11794	12472
NERC-MEXICO											
WSCC	2159	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
TOTAL(MEXICO)	2159	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
NERC-TOTAL	172962	155638	149363	145745	134952	150039	160204	171926	178848	188207	201341

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Includes No.4, No.5, and No.6 oil.
[c] Used in steam, combustion turbine (and diesel), and combined cycle units.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
RESIDUAL OIL[b] (STEAM) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	1206	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
ERCOT	337	396	396	396	396	396	396	396	396	396	396
MAAC	22917	15800	9764	14463	9210	10749	8852	13563	15629	16809	19096
MAIN	3459	444	515	764	687	1304	1572	1803	2692	3099	4044
CMNWLTH EDISON	3105	405	455	690	610	1220	1380	1510	2360	2695	3440
EAST MISSOURI	226	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	128	39	60	74	77	84	192	293	332	404	604
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	64	25	36	38	37	38	43	38	51	55	86
NPCC	94494	107684	103021	85367	73406	79887	84315	87273	92105	98976	102681
NEW YORK	50943	49153	48942	42840	38470	38344	42430	42312	45236	48537	51572
NEPOOL	43551	58531	54079	42527	34936	41543	41885	44961	46869	50439	51109
SERC	37000	19303	21876	28004	32272	37543	44671	48603	46880	47271	50578
FLORIDA	32518	18443	21190	27462	31624	36088	42560	45523	44253	44021	47385
SOUTHERN	206	188	116	166	158	52	73	45	51	50	22
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4276	672	570	376	490	1403	2038	3035	2576	3200	3171
SPP	429	717	73	86	399	396	81	705	712	496	1730
SOUTHEAST	361	663	13	31	338	333	16	628	623	373	1550
WEST CENTRAL	1	11	11	11	11	11	11	11	11	22	44
NORTHERN	67	43	49	44	50	52	54	66	78	101	136
WSCC	2939	1499	1646	1973	1961	2049	2146	1855	1645	1806	1879
NW POOL	0	0	0	0	0	0	32	32	32	32	32
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	69	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	2870	1499	1646	1973	1961	2049	2114	1823	1613	1774	1847
TOTAL(U.S.)	162845	146968	138427	132191	119468	133462	143176	155336	161210	170008	181590
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	7883	5952	8029	9815	11221	12148	12716	11598	12001	11794	12472
NEW BRUNSWICK	5529	4900	6520	7545	8848	10155	10765	10187	11310	11184	11515
NOVA SCOTIA	2154	903	1418	2179	2285	1902	1901	1244	402	250	373
ONTARIO	200	149	91	91	88	91	50	167	289	360	584
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	7883	5952	8029	9815	11221	12148	12716	11598	12001	11794	12472
NERC-MEXICO											
WSCC	2159	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
TOTAL(MEXICO)	2159	2117	2368	3139	3604	3596	3430	4105	4828	5627	6463
NERC-TOTAL	172887	155037	148824	145145	134293	149206	159322	171039	178039	187429	200525

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Includes No.4, No.5, and No.6 oil.

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
RESIDUAL OIL[b] (COMBUSTION TURBINE)[c] - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	4	0	0	0	0	0	0	0	0	0	0
MAAC	16	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	15	8	7	5	5	7	7	8	4	3
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	47	62	79	211	293	434	426	397	304	259	274
FLORIDA	47	62	79	211	293	434	426	397	304	259	274
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	67	77	87	218	298	439	433	404	312	263	277
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	67	77	87	218	298	439	433	404	312	263	277

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Includes No.4, No.5, and No.6 oil.
[c] Includes diesel units.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
RESIDUAL OIL[b] (COMBINED CYCLE) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	8	291	190	70	43	56	95	119	136	153	170
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	8	291	190	70	43	56	95	119	136	153	170
SERC	0	224	250	306	312	332	348	358	355	356	363
FLORIDA	0	224	250	306	312	332	348	358	355	356	363
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	9	12	6	6	6	6	6	6	6	6
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	9	12	6	6	6	6	6	6	6	6
TOTAL(U.S.)	8	524	452	382	361	394	449	483	497	515	539
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	8	524	452	382	361	394	449	483	497	515	539

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).

[b] Includes No.4, No.5, and No.6 oil.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
TOTAL CRUDE OIL (STEAM) - 1000's BARRELS

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	0	0	0	0	0	0	0	0	0	0
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	0	0	0	0	0	0	0	0	0	0	0
FLORIDA	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	0	0	0	0	0	0
SPP	0	0	0	0	0	0	0	0	0	0	0
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	35	0	0	0	0	0	0	0	0	0	0
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	0	0	0	0	0	0	0	0	0	0
CALIF-SO.NEV	35	0	0	0	0	0	0	0	0	0	0
TOTAL(U.S.)	35	0	0	0	0	0	0	0	0	0	0
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	35	0	0	0	0	0	0	0	0	0	0

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
TOTAL FIRM NATURAL GAS[b] - 1000 MCF

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	705003	889253	777181	731426	764679	775825	813400	790900	825664	855871	819817
MAAC	7127	0	0	0	0	0	0	0	0	0	0
MAIN	1812	1322	859	343	546	669	855	962	1635	2029	2797
CMNWLTH EDISON	1651	1155	695	180	385	510	695	795	1455	1855	2610
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	13	20	17	16	14	12	13	20	33	27	40
WIS-UPPER MICH	148	147	147	147	147	147	147	147	147	147	147
MAPP	1936	2902	3118	3233	3298	3407	3386	3471	3766	3777	3742
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	19127	15641	14571	17949	20210	22136	25404	26273	25463	24810	24631
FLORIDA[c]	4017	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	10451	12131	10871	11402	10513	10401	11546	11787	12000	12583	12228
TVA[d]	0	0	0	0	0	0	0	0	0	0	0
VACAR	4659	3510	3700	6547	9697	11735	13858	14486	13463	12227	12403
SPP	368470	383891	383992	362748	334797	370931	395351	398998	426543	435144	442956
SOUTHEAST	130394	156670	158871	150486	120905	142918	156221	155272	170016	171940	167351
WEST CENTRAL	233312	221611	219529	206670	208300	222403	233538	238134	250635	256994	269113
NORTHERN	4764	5610	5592	5592	5592	5610	5592	5592	5892	6210	6492
WSCC	672905	399853	287133	283665	262881	313986	340434	378931	399448	450671	480493
NW POOL	1337	7056	7092	7044	7044	7380	7356	7356	6936	7068	9655
ROCKY MT-AREA	3701	3692	3748	3994	4107	4309	4780	5105	5877	5101	3406
ARIZ-N.MEX	49342	35378	40882	33711	26692	30582	36983	41866	45379	47897	50688
CALIF-SO.NEV	618525	353727	235411	238916	225038	271715	291315	324604	341256	390605	416744
TOTAL(U.S.)	1776380	1692862	1466854	1399364	1386411	1486954	1578830	1599535	1682519	1772302	1774436
NERC-CANADA											
MAPP	2769	2769	2769	3928	5499	5649	3629	3850	2095	1983	2169
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	15039	30020	31513	24920	18475	17477	22707	36666	45765	47096	46223
TOTAL(CANADA)	17808	32789	34282	28848	23974	23126	26336	40516	47860	49079	48392
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1794188	1725651	1501136	1428212	1410385	1510080	1605166	1640051	1730379	1821381	1822828

---

[a] Excludes the fuel requirements on non-utility generators (NUGs).

[b] Used in steam, combustion turbine (and diesel), and combined cycle units.

[c] Does not distinguish between firm and interruptible natural gas. All natural gas projections are reported as interruptible natural gas. See Appendix C pages 17 through 20 and Table 28 for SERC (Florida) natural gas figures.

[d] Gas is used in 30% of TVA's gas turbines when available and economic. TVA does not predict natural gas use in combustion turbines in the long range planning process.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
FIRM NATURAL GAS (STEAM) - 1000 MCF

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	679591	853500	745077	700037	730658	729627	768442	733966	765425	791076	748998
MAAC	7127	0	0	0	0	0	0	0	0	0	0
MAIN	1604	1217	647	147	147	147	147	147	147	147	147
CMNWLTH EDISON	1456	1070	500	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	148	147	147	147	147	147	147	147	147	147	147
MAPP	1915	2802	3018	3133	3198	3307	3286	3371	3666	3677	3642
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	14634	11600	10560	10239	9105	8202	9308	9215	9322	9643	9952
FLORIDA[b]	3368	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	6883	8187	7040	7571	6457	6210	7315	7221	7327	7647	7955
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	4383	3413	3520	2668	2648	1992	1993	1994	1995	1996	1997
SPP	338546	358025	353388	330444	305741	339183	362861	366619	392971	401947	406522
SOUTHEAST	130394	156670	158871	150486	120905	142918	156221	155272	170016	171940	167351
WEST CENTRAL	203534	196045	189225	174666	179544	190955	201348	206055	217663	224697	233879
NORTHERN	4618	5310	5292	5292	5292	5310	5292	5292	5292	5310	5292
WSCC	635239	371154	263550	262964	244447	293622	312252	346607	362638	412908	442522
NW POOL	1337	7056	7092	7044	7044	7380	7356	7356	6936	7068	9655
ROCKY MT-AREA	3664	3625	3693	3938	4073	4208	4343	4478	4230	3846	3171
ARIZ-N.MEX	26428	17622	26084	21957	16812	19175	22713	28495	30643	32850	34817
CALIF-SO.NEV	603810	342851	226681	230025	216518	262859	277840	306278	320829	369144	394879
TOTAL(U.S.)	1678656	1598298	1376240	1306964	1293296	1374088	1456296	1459925	1534169	1619398	1611783
NERC-CANADA											
MAPP	1422	1422	1422	1833	2207	2095	1534	1683	786	748	860
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	6892	23637	25087	19352	13545	12590	17472	28676	32004	32393	31143
TOTAL(CANADA)	8314	25059	26509	21185	15752	14685	19006	30359	32790	33141	32003
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	1686970	1623357	1402749	1328149	1309048	1388773	1475302	1490284	1566959	1652539	1643786

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).

[b] See Appendix C, page 13, footnote c.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
FIRM NATURAL GAS (COMBUSTION TURBINE)[b] - 1000 MCF

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	5253	1455	1072	2999	4947	3369	3650	2743	3991	5645	6463
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	208	105	212	196	399	522	708	815	1488	1882	2650
CMNWLTH EDISON	195	85	195	180	385	510	695	795	1455	1855	2610
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	13	20	17	16	14	12	13	20	33	27	40
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	21	100	100	100	100	100	100	100	100	100	100
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	4212	4041	4011	3897	4199	4219	4297	4585	4708	4942	4286
FLORIDA[c]	368	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	3568	3944	3831	3831	4056	4191	4231	4566	4673	4936	4273
TVA[d]	0	0	0	0	0	0	0	0	0	0	0
VACAR	276	97	180	66	143	28	66	19	35	6	13
SPP	625	495	482	358	323	319	325	341	631	941	1272
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	479	195	182	58	23	19	25	41	31	41	72
NORTHERN	146	300	300	300	300	300	300	300	600	900	1200
WSCC	2532	5156	5331	5125	4258	4883	5736	4324	4560	5321	4183
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	37	67	55	56	34	101	437	627	1647	1255	235
ARIZ-N.MEX	414	1173	1276	1278	804	1026	1784	1676	1274	1970	1816
CALIF-SO.NEV	2081	3916	4000	3791	3420	3756	3515	2021	1639	2096	2132
TOTAL(U.S.)	12851	11352	11208	12675	14226	13412	14816	12908	15478	18831	18954
NERC-CANADA											
MAPP	1347	1347	1347	2095	3292	3554	2095	2167	1309	1235	1309
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	8147	6383	6426	5568	4930	4887	5235	7990	13761	14703	15080
TOTAL(CANADA)	9494	7730	7773	7663	8222	8441	7330	10157	15070	15938	16389
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	22345	19082	18981	20338	22448	21853	22146	23065	30548	34769	35343

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).

[b] Includes diesel units.

[c] See Appendix C, page 13, footnote c.

[d] See Appendix C, page 13, footnote d.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
FIRM NATURAL GAS (COMBINED CYCLE) - 1000 MCF

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	20159	34298	31032	28390	29074	42829	41308	54191	56248	59150	64356
MAAC	0	0	0	0	0	0	0	0	0	0	0
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	0	0	0	0	0	0	0	0	0	0	0
SERC	281	0	0	3813	6906	9715	11799	12473	11433	10225	10393
FLORIDA[b]	281	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	3813	6906	9715	11799	12473	11433	10225	10393
SPP	29299	25371	30122	31946	28733	31429	32165	32038	32941	32256	35162
SOUTHEAST	0	0	0	0	0	0	0	0	0	0	0
WEST CENTRAL	29299	25371	30122	31946	28733	31429	32165	32038	32941	32256	35162
NORTHERN	0	0	0	0	0	0	0	0	0	0	0
WSCC	35134	23543	18252	15576	14176	15481	22446	28000	32250	32442	33788
NW POOL	0	0	0	0	0	0	0	0	0	0	0
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	22500	16583	13522	10476	9076	10381	12486	11695	13462	13077	14055
CALIF-SO.NEV	12634	6960	4730	5100	5100	5100	9960	16305	18788	19365	19733
TOTAL(U.S.)	84873	83212	79406	79725	78889	99454	107718	126702	132872	134073	143699
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	84873	83212	79406	79725	78889	99454	107718	126702	132872	134073	143699

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] See Appendix C, page 13, footnote c.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
TOTAL INTERRUPTIBLE NATURAL GAS[b,c] - 1000 MCF

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	11990	9500	8500	8500	8500	8500	8625	8675	8675	8675	8675
ERCOT	210568	22216	24762	31038	31132	34184	37976	37478	39579	41315	42765
MAAC	87894	133805	104848	78688	68212	70476	67750	79230	89110	104488	116209
MAIN	2729	2385	2399	2071	2129	2598	3908	5769	6924	7274	9443
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	625	85	85	85	85	85	85	85	85	85	85
S CENT ILLINOIS	561	528	921	968	1089	916	2127	2735	3114	3679	5017
WIS-UPPER MICH	1543	1772	1393	1018	955	1597	1696	2949	3725	3510	4341
MAPP	7455	4793	4947	6056	6769	7258	7039	6616	7227	7479	7752
NPCC	226628	157664	147356	124476	114359	104370	95639	95639	96758	96993	97292
NEW YORK	173393	150000	140000	120000	110000	100000	90000	90000	90000	90000	90000
NEPOOL	53235	7664	7356	4476	4359	4370	5639	5639	6758	6993	7292
SERC	175985	206942	204441	207936	213815	218172	226045	226540	228477	228093	233694
FLORIDA[d]	170079	200840	202106	201956	208810	212995	219749	219365	219444	219384	219787
SOUTHERN	5468	4495	868	2695	2062	2206	1915	1035	1047	1386	1666
TVA[e]	0	0	0	0	0	0	0	0	0	0	0
VACAR	438	1607	1467	3285	2943	2971	4381	6140	7986	7323	12241
SPP	268371	236758	254933	265316	275628	274032	271563	282653	291839	272043	274093
SOUTHEAST	256452	225595	242450	236545	238182	236690	229657	232599	239877	216167	213122
WEST CENTRAL	5260	1372	1822	18533	23658	24840	24860	25922	28402	30078	32478
NORTHERN	6659	9791	10661	10238	13788	12502	17046	24132	23560	25798	28493
WSCC	2073	51091	54023	60668	53403	52814	80697	84991	91895	99392	100956
NW POOL	99	0	0	0	0	0	24903	27878	27878	28039	28951
ROCKY MT-AREA	1974	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	6061	6711	5588	5397	5124	5114	5883	5657	6098	6519
CALIF-SO.NEV	0	45030	47312	55080	48006	47690	50680	51230	58360	65255	65486
TOTAL(U.S.)	993693	825154	806209	784749	773947	772404	799242	827591	860484	865752	890879
NERC-CANADA											
MAPP	13	25	25	25	25	25	25	25	25	25	25
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	8902	450	7586	15685	26042	35817	27145	28801	38395	38887
TOTAL(CANADA)	13	8927	475	7611	15710	26067	35842	27170	28826	38420	38912
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	993706	834081	806684	792360	789657	798471	835084	854761	889310	904172	929791

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Interruptible by contractual agreement.
[c] Used in steam, combustion turbine (and diesel), and combined cycle units.
[d] Appendix C, page 13, footnote c.
[e] Appendix C, page 13, footnote d.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
INTERRUPTIBLE NATURAL GAS[b] (STEAM) - 1000 MCF

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	11390	9000	8000	8000	8000	8000	8000	8000	8000	8000	8000
ERCOT	210453	12498	15162	20057	19440	21698	23293	23487	24828	24864	26458
MAAC	63356	104507	85662	69025	61489	63486	61196	69881	77112	82672	91707
MAIN	2270	1720	2126	1765	1896	1771	2770	3232	3380	3794	4523
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	624	68	68	68	68	68	68	68	68	68	68
S CENT ILLINOIS	519	528	915	949	1053	875	1826	2233	2347	2740	3424
WIS-UPPER MICH	1127	1124	1143	748	775	828	876	931	965	986	1031
MAPP	6786	3592	3750	4912	5344	5829	5578	5140	5482	5687	6063
NPCC	214438	147079	139174	120831	110810	100810	90938	90970	91087	91151	91205
NEW YORK	168867	145768	137884	120000	110000	100000	90000	90000	90000	90000	90000
NEPOOL	45571	1311	1290	831	810	810	938	970	1087	1151	1205
SERC	151050	183488	179135	179352	184980	187581	190086	167530	170478	169363	167939
FLORIDA[c]	145275	178925	177947	176213	182451	185074	187830	165971	168838	167892	165317
SOUTHERN	5427	4345	848	2622	2017	2173	1854	1013	1026	1126	1176
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	348	218	340	517	512	334	402	546	614	345	1446
SPP	264608	235636	254033	264222	274474	272429	269855	280736	289407	269067	270599
SOUTHEAST	253350	224872	241861	235785	237682	235833	228968	231836	238985	214989	211821
WEST CENTRAL	5168	1372	1822	18531	23640	24802	24828	25875	28337	29996	32381
NORTHERN	6090	9392	10350	9906	13152	11794	16059	23025	22085	24082	26397
WSCC	1974	49667	52322	59931	52701	52247	55194	56495	52680	49226	49327
NW POOL	0	0	0	0	0	0	0	0	0	0	1073
ROCKY MT-AREA	1974	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	5413	5786	5410	5220	4946	4937	5705	5480	5920	6342
CALIF-SO.NEV	0	44254	46536	54521	47481	47301	50257	50790	47200	43306	41912
TOTAL(U.S.)	926325	747187	739364	728095	719134	713851	706910	705471	722454	703824	715821
NERC-CANADA											
MAPP	13	25	25	25	25	25	25	25	25	25	25
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	8902	0	4750	12379	22211	31569	22458	23579	32585	32585
TOTAL(CANADA)	13	8927	25	4775	12404	22236	31594	22483	23604	32610	32610
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	926338	756114	739389	732870	731538	736087	738504	727954	746058	736434	748431

---

[a] Excludes the fuel requirments of non-utility generators (NUGs).
[b] Interruptible by contractual agreement.
[c] See Appendix C, page 13, footnote c.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
INTERRUPTIBLE NATURAL GAS[b] (COMBUSTION TURBINE)[c] - 1000 MCF

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	600	500	500	500	500	500	625	675	675	675	675
ERCOT	115	3202	1903	2906	3888	5031	6184	5896	5911	7741	7542
MAAC	17400	22344	14135	5961	4408	3602	4025	4954	7184	8914	9969
MAIN	459	665	273	306	233	827	1138	2537	3544	3480	4920
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	1	17	17	17	17	17	17	17	17	17	17
S CENT ILLINOIS	42	0	6	19	36	41	301	502	767	939	1593
WIS-UPPER MICH	416	648	250	270	180	769	820	2018	2760	2524	3310
MAPP	668	1201	1197	1144	1425	1429	1461	1476	1745	1792	1689
NPCC	4730	4477	2319	53	53	32	64	107	149	160	203
NEW YORK	4526	4232	2116	0	0	0	0	0	0	0	0
NEPOOL	204	245	203	53	53	32	64	107	149	160	203
SERC	3049	4398	4880	7545	7490	8770	5912	9561	8005	8043	7177
FLORIDA[d]	2918	2859	3733	4704	5014	7335	4063	8093	6254	6901	5337
SOUTHERN	41	150	20	73	45	33	61	22	21	260	490
TVA[e]	0	0	0	0	0	0	0	0	0	0	0
VACAR	90	1389	1127	2768	2431	1402	1788	1446	1730	882	1350
SPP	575	384	311	326	643	709	999	1124	1450	1632	1984
SOUTHEAST	2	5	8	17	5	7	11	9	11	17	22
WEST CENTRAL	92	0	0	2	18	38	32	47	65	82	97
NORTHERN	481	379	303	307	620	664	956	1068	1374	1533	1865
WSCC	99	325	325	295	294	295	7292	7293	7292	7315	7292
NW POOL	99	0	0	0	0	0	6998	6998	6998	7020	6998
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	178	178	178	177	178	177	178	177	178	177
CALIF-SO.NEV	0	147	147	117	117	117	117	117	117	117	117
TOTAL (U.S.)	27695	37496	25843	19036	18934	21195	27700	33623	35955	39752	41451
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	450	2836	3306	3831	4248	4687	5222	5810	6302
TOTAL(CANADA)	0	0	450	2836	3306	3831	4248	4687	5222	5810	6302
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	27695	37496	26293	21872	22240	25026	31948	38310	41177	45562	47753

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Interruptible by contractual agreement.
[c] Includes diesel units.
[d] See Appendix C, page 13, footnote c.
[e] See Appendix C, page 13, footnote d.

North American
Electric
Reliability
Council

APPENDIX C
REGIONAL FOSSIL FUEL REQUIREMENTS[a] FOR ELECTRICAL ENERGY PRODUCTION
INTERRUPTIBLE NATURAL GAS[b] (COMBINED CYCLE) - 1000 MCF

	ACTUAL	PROJECTED									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NERC-U.S.											
ECAR	0	0	0	0	0	0	0	0	0	0	0
ERCOT	0	6516	7697	8075	7804	7455	8499	8095	8840	8710	8765
MAAC	7138	6954	5051	3702	2315	3388	2529	4395	4814	12902	14533
MAIN	0	0	0	0	0	0	0	0	0	0	0
CMNWLTH EDISON	0	0	0	0	0	0	0	0	0	0	0
EAST MISSOURI	0	0	0	0	0	0	0	0	0	0	0
S CENT ILLINOIS	0	0	0	0	0	0	0	0	0	0	0
WIS-UPPER MICH	0	0	0	0	0	0	0	0	0	0	0
MAPP	1	0	0	0	0	0	0	0	0	0	0
NPCC	7460	6108	5863	3592	3496	3528	4637	4562	5522	5682	5884
NEW YORK	0	0	0	0	0	0	0	0	0	0	0
NEPOOL	7460	6108	5863	3592	3496	3528	4637	4562	5522	5682	5884
SERC	21886	19056	20426	21039	21345	21821	30047	49449	49994	50687	58578
FLORIDA[c]	21886	19056	20426	21039	21345	20586	27856	45301	44352	44591	49133
SOUTHERN	0	0	0	0	0	0	0	0	0	0	0
TVA	0	0	0	0	0	0	0	0	0	0	0
VACAR	0	0	0	0	0	1235	2191	4148	5642	6096	9445
SPP	3188	738	589	768	511	894	709	793	982	1344	1510
SOUTHEAST	3100	718	581	743	495	850	678	754	881	1161	1279
WEST CENTRAL	0	0	0	0	0	0	0	0	0	0	0
NORTHERN	88	20	8	25	16	44	31	39	101	183	231
WSCC	0	1099	1376	442	408	272	18211	21203	31923	42851	44337
NW POOL	0	0	0	0	0	0	17905	20880	20880	21019	20880
ROCKY MT-AREA	0	0	0	0	0	0	0	0	0	0	0
ARIZ-N.MEX	0	470	747	0	0	0	0	0	0	0	0
CALIF-SO.NEV	0	629	629	442	408	272	306	323	11043	21832	23457
TOTAL(U.S.)	39673	40471	41002	37618	35879	37358	64632	88497	102075	122176	133607
NERC-CANADA											
MAPP	0	0	0	0	0	0	0	0	0	0	0
NPCC	0	0	0	0	0	0	0	0	0	0	0
NEW BRUNSWICK	0	0	0	0	0	0	0	0	0	0	0
NOVA SCOTIA	0	0	0	0	0	0	0	0	0	0	0
ONTARIO	0	0	0	0	0	0	0	0	0	0	0
QUEBEC	0	0	0	0	0	0	0	0	0	0	0
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(CANADA)	0	0	0	0	0	0	0	0	0	0	0
NERC-MEXICO											
WSCC	0	0	0	0	0	0	0	0	0	0	0
TOTAL(MEXICO)	0	0	0	0	0	0	0	0	0	0	0
NERC-TOTAL	39673	40471	41002	37618	35879	37358	64632	88497	102075	122176	133607

---

[a] Excludes the fuel requirements of non-utility generators (NUGs).
[b] Interruptible by contractual agreement.
[c] See Appendix C, page 13, footnote c.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S[a]	TYPE[b]	FUEL[b]	STATUS[b]	U/NU[b]	JOINT[c]
88/01	ECAR		MI	DECO	Fermi 2	1093	NB	UR	V	U	J
88/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	195	GT	NG	V	U	
88/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	GT	NG	V	U	
88/01	MAAC		NJ	PSCO	American Hydro Power Co.	2	HY	WAT	V	ZZ	
88/01	MAAC		NJ	PSCO	Great Falls Hydroelectric	11	HY	WAT	V	ZZ	
88/01	MAAC		NJ	PSCO	Kinsley's Landfill Co.	3	IC	NG	V	ZZ	
88/01	MAAC		NJ	PSCO	Trenton District Energy Co.	12	IC	GAS	V	ZZ	
88/01	MAAC		PA	GPUS	Indiana Univ. of PA - NUG	20	IC	NG	P	ZZ	
88/01	MAAC		PA	GPUS	Ontelaunee Dam - NUG	1	HY	WAT	P	ZZ	
88/01	MAAC		PA	GPUS	Westwood - NUG	30[d]	ST	ZZ	P	ZZ	
88/01	MAAC		PA	GPUS	York Hospital - NUG	3	IC	GAS	P	ZZ	
88/01	WSCC	AZN	AZ	APS	PALO VERDE 3	1270	NP	UR	V	U	J
88/01	WSCC	CNV	CA	PG&E	QF COGENERATION 88	575	CG	UNK	P	CG	
88/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 88	3	GE	GST	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	QF HYDRO 88	7	HY	WAT	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	QF WIND 88	4	WM	WND	P	ZZ	
88/01	WSCC	CNV	CA	SDGE	QF HYDRO (1)	2	HY	WAT	P	ZZ	
88/02	MAAC		NJ	PSCO	Starmark Energy System Inc.	3	ZZ	GAS	P	ZZ	
88/02	MAPP		MN	NSP	BYLLESBY-NSP 1	2.5	HY	WAT	V	ZZ	
88/02	NPCC	NE	ME	BAHE	PERC ORINGTON (RERATE)	10	ST	WD	V	CG	
88/02	NPCC	NE	ME	CEMP	ANDROSCOG RESVR AZISCOHAS	5.5	HY	WAT	V	ZZ	
88/02	NPCC	NE	ME	CEMP	FAIRFIELD ENERGY (RERATE)	11.4	ST	WD	V	CG	
88/02	NPCC	NE	NH	UNTL	PERC	4	ST	WD	V	CG	
88/02	WSCC	AZN	NM	LAC	EL VADO DAM	8	HY	WAT	V	U	
88/02	WSCC	CNV	CA	CCSF	MOCCASIN	2	HY	WAT	V	U	
88/02	WSCC	CNV	CA	SNCL	BLACK BUTTE DAM	6	HY	WAT	V	U	
88/02	WSCC	NWP	UT	UAMP	PAYSON 1-2	5	IC	NG	V	U	
88/03	MAIN	WUM	WI	KAUK	COMBINED LOCKS	6	HY	WAT	P	U	
88/03	NPCC	NY	NY	NIMP	Nine Mile Point 2	1080	NP	UR	V	U	J
88/03	WSCC	CNV	CA	WAMP	WARM SPRINGS DAM	1	HY	WAT	V	ZZ	
88/04	NPCC	NE	CT	NOEU	DEVON 10	17.2	JE	JF	V	U	
88/04	NPCC	NE	ME	BAHE	WEST ENFIELD	9	HY	WAT	V	U	
88/04	NPCC	NE	ME	CEMP	LEWISTON ST&PR PH II inc	3.4	ST	REF	T	CG	
88/04	NPCC	NE	NH	PSNH	MINNEYAWA	.4	HY	WAT	V	ZZ	
88/04	NPCC	NE	VT	VTGP	SWANTON HYDRO	.6	HY	WAT	T	ZZ	
88/04	WSCC	CNV	CA	WAMP	WEBER GT	9	CG	NG	P	CG	
88/04	WSCC	NWP	ID	SCL	LUCKY PEAK	100	HY	WAT	V	ZZ	
88/04	WSCC	RMP	CO	PSC	GEORGETOWN LAKE HYDRO (1)	0	HY	WAT	T	ZZ	
88/05	ERCOT		TX	LCRA	F.P.P. #3	327	ST	SUB	V	U	
88/05	MAAC		MD	DPLC	Easton Unidentified CT	6.2	IC	FO2	P	U	
88/05	MAAC		MD	DPLC	Easton Unidentified CT	6.3	IC	FO2	P	U	
88/05	MAAC		NJ	GPUS	Hamms Landfill - NUG	1	IC	GAS	P	ZZ	
88/05	MAAC		PA	ALEC	Raystown 1	2.4	HY	WAT	V	U	
88/05	MAAC		PA	ALEC	Raystown 2	0	HY	WAT	V	U	
88/05	MAPP		MN	MP	BLANCHARD 3	6	HY	WAT	U	U	
88/05	MAPP		MN	NSP	ST CLOUD-NSP 1	8.2	HY	WAT	V	ZZ	
88/05	MAPP		NE	LES	ARCHER DANIELS-LES 1	6	ST	BIT	V	ZZ	
88/05	NPCC	NE	CT	UNIC	CRRA	55	ST	REF	V	CG	
88/05	NPCC	NE	NH	PSNH	TAMWORTH PROJECT(UPRATE)	16.9	ST	WD	V	CG	
88/05	NPCC	NE	VT	VTGP	HIGHGATE FALLS	3.1	HY	WAT	U	U	
88/05	NPCC	NY	NY	LOIL	Non-Utility Generators	20[e]	ZZ	UNK	P	ZZ	
88/05	NPCC	NY	NY	NEYE	Non-Utility Generators	10[e]	ZZ	UNK	T	ZZ	
88/05	NPCC	NY	NY	NEYE	Non-Utility Generators	12[e]	ZZ	UNK	P	ZZ	
88/05	NPCC	NY	NY	NIMP	Non-Utility Generators	17[e]	ZZ	UNK	T	ZZ	
88/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	258	UN	UNK	P	ZZ	
88/05	SERC	SOU	UN	UNK	NON UTILITY GENERATOR	1	UN	UNK	P	ZZ	
88/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	306	UN	UNK	P	ZZ	

[a] Summer (S) rating of units in megawatts (MW).

[b] See explanation of codes on the next to last page of the report.

[c] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[d] Facilities qualifying under PURPA regulations which may be waste burning (trash, waste coal), small hydro, third party financed or self-generation, cogeneration (in excess of internal load served), wind, solar, etc. or fluidized bed combustion facility using anthracite coal (culm) for fuel.

[e] Small power producers at various locations, providing power burning various types of fuel.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
88/05	WSCC	CNV	CA	CCPA	COLDWATER CRK UNIT 1	61	GE	GST	V	U	J
88/05	WSCC	CNV	CA	SNCL	HIGH LINE CANAL	0	HY	WAT	U	U	
88/06	ERCOT		TX	AUST	GAS TURBINE #1	50	GT	NG	V	U	
88/06	ERCOT		TX	AUST	GAS TURBINE #2	50	GT	NG	V	U	
88/06	ERCOT		TX	AUST	GAS TURBINE #3	50	GT	NG	V	U	
88/06	ERCOT		TX	AUST	GAS TURBINE #4	50	GT	NG	V	U	
88/06	MAIN	CE	IL	CECO	BRAIDWOOD 2	1090	NP	UR	V	U	
88/06	NPCC	NE	CT	NOEU	BRISTOL REFUSE	13.2	ST	REF	V	CG	
88/06	NPCC	NE	CT	NOEU	HARTFORD HOSPITAL	10.2	CC	NG	V	CG	
88/06	NPCC	NE	CT	NOEU	SO MEADOW 5 (RERATE)	32.3	ST	REF	V	CG	
88/06	NPCC	NE	ME	CEMP	MILLSTAR NEW (LOCKWOOD HY)	1.8	HY	WAT	U	ZZ	
88/06	NPCC	NE	NH	PSNH	WHTFLD PWR&LT(115&34.5kV)	13.8	ST	WD	U	CG	
88/06	NPCC	NE	VT	VTGP	MISSISQUOI	10	HY	WAT	V	ZZ	
88/06	WSCC	NWP	NV	SPP	GEOTHERMAL	35	GE	GST	P	ZZ	
88/07	ECAR		PA	APS	ALLEGHENY LK & D #5	3	HY	WAT	P	ZZ	
88/07	ECAR		WV	APS	HANNIBAL LOCK & DAM	20	HY	WAT	P	ZZ	
88/07	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #1	1250	NP	UR	V	U	J
88/07	MAAC		PA	GPUS	Caterpillar Tractor - NUG	45	GT	NG	P	ZZ	
88/07	NPCC	NE	MA	NOEU	SPRINGFIELD	7.5	ST	REF	U	CG	
88/07	NPCC	NE	ME	CEMP	CPCOG GTR PORT RS RCVRY	8.9	ST	REF	U	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	2	IC	UNK	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	84	IC	UNK	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	383	CG	UNK	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	392	CG	UNK	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	5	CG	UNK	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	1	GE	GST	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	88	GE	GST	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	3	HY	WAT	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	54	SO	SUN	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	5	WM	WND	P	ZZ	
88/07	WSCC	NWP	WA	PSPL	SKAGIT CO. WASTE	2	CG	REF	U	CG	
88/07	WSCC	RMP	CO	PSC	COGEN AT UNC	65	CG	NG	U	CG	
88/07	WSCC	RMP	CO	PSC	HIGHLAND CANAL HYDRO (1)	2	HY	WAT	T	ZZ	
88/08	ECAR		PA	APS	ALLEGHENY LK & D #6	4	HY	WAT	P	ZZ	
88/08	NPCC	NE	CT	NOEU	CAPITOL DISTRICT	45	CC	NG	U	CG	
88/08	WSCC	RMP	CO	PSC	PLATORO PROJECT (1)	0	HY	WAT	U	ZZ	
88/09	MAAC		NJ	GPUS	Bayonne - NUG	125	ST	NG	P	ZZ	
88/09	MAAC		PA	GPUS	Glatfelter 2 - NUG	26[a]	ST	ZZ	P	ZZ	
88/09	NPCC	NY	NY	POAS	Non-Utility Generators	2.5[b]	ZZ	UNK	P	ZZ	
88/09	SPP	N	KS	EMDE	RIVERTON 10	17	GT	NG	L	U	
88/09	SPP	N	KS	EMDE	RIVERTON 11	17	GT	NG	L	U	
88/09	SPP	SE	AR	AREC	HS 13 UNIT #1	6	HY	WAT	V	U	
88/09	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	25	CG	UNK	P	CG	
88/09	WSCC	RMP	CO	PSC	WHITEWATER HYDRO (1)	0	HY	WAT	T	ZZ	
88/10	NPCC	NE	ME	CEMP	CHAMPION COGEN	27.3	ST	REF	U	CG	
88/10	SERC	FL	FL	FLPL	ST. JOHNS RIVER 2	624	ST	BIT	V	U	J
88/10	SPP	SE	AR	AREC	HS 13 UNIT #2	6	HY	WAT	V	U	
88/10	WSCC	AZN	NM	FARM	NAVAJO DAM	30	HY	WAT	V	U	
88/10	WSCC	CNV	CA	CCPA	COLDWATER CRK UNIT 2	61	GE	GST	V	U	J
88/10	WSCC	NWP	OR	PPL	JIM BOYD HYDRO	1	HY	WAT	P	ZZ	
88/11	MAAC		NJ	GPUS	L&D Landfill - NUG	4	IC	REF	P	ZZ	
88/11	MAPP		NE	OPPD	KELLOGG CO-OPPD 1	.6	CW	WH	V	ZZ	
88/11	NPCC	NE	MA	COMW	SEMASS	47.7	ST	REF	V	CG	
88/11	NPCC	NE	ME	CEMP	MILLER HYD WORUSBO-NEW	13.1	HY	WAT	U	ZZ	
88/11	NPCC	NE	VT	VTGP	BELDEN	.6	HY	WAT	V	U	
88/11	NPCC	NE	VT	VTGP	COMTU FALLS-2	.2	HY	WAT	U	ZZ	
88/11	NPCC	NE	VT	VTGP	HUNTINGTON FALLS	.6	HY	WAT	V	U	
88/11	NPCC	NY	NY	CEHG	Non-Utility Generators	6[b]	ZZ	UNK	P	ZZ	

---

[a] See Appendix D, page 1, footnote d.
[b] See Appendix D, page 1, footnote e.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
88/11	SPP	SE	AR	AREC	HS 13 UNIT #3	5	HY	WAT	V	U	
88/11	WSCC	NWP	WA	PPL	CITY OF WALLA WALLA	1	HY	WAT	P	ZZ	
88/12	MAAC		NJ	GPUS	Dupont - NUG	92	GT	NG	P	ZZ	
88/12	MAAC		NJ	GPUS	Marcal Paper - NUG	45	GT	NG	P	ZZ	
88/12	MAAC		NJ	GPUS	Riegel Paper - NUG	33	GT	NG	P	ZZ	
88/12	MAAC		NJ	GPUS	Schering Plough - NUG	23	GT	NG	P	ZZ	
88/12	MAAC		NJ	GPUS	Warren Co. RR - NUG	11	IC	REF	P	ZZ	
88/12	MAAC		PA	GPUS	7 Springs Dam - NUG	10	HY	WAT	P	ZZ	
88/12	MAAC		PA	GPUS	Monroe Co. RR - NUG	6	IC	REF	P	ZZ	
88/12	NPCC	NE	ME	CEMP	SCOTT WINSLOW-COGEN	16.1	ST	WD	T	CG	
88/12	NPCC	NE	VT	VTGP	UNION VILLAGE	.2	HY	WAT	T	ZZ	
88/12	SERC	FL	FL	FOPC	KING 5	7.5	CW	WH	V	U	
88/12	SERC	FL	FL	FOPC	KING 9	22.5	CT	NG	V	U	
88/12	WSCC	NWP	ID	IPC	COGEN NO. 4	20	CG	UNK	P	CG	
88/UN	NPCC	NE	MA	COMW	CPC LOWELL	25	ST	NG	U	CG	
SUBTOTAL						11262					
89/01	ECAR		UN	APS	PURPA 1	1	ST	GAS	P	ZZ	
89/01	ECAR		UN	CP	TOTAL OF 2 FACILITIES	34	UN	WOD	P	ZZ	
89/01	ECAR		UN	DECO	ONE FACILITY	10	UN	UNK	P	ZZ	
89/01	MAAC		UN	GPUS	Non-Utility Generation	15	UN	UNK	P	ZZ	
89/01	NPCC	NE	CT	NOEU	DERBY DAM	6.2	HY	WAT	U	ZZ	
89/01	SERC	FL	FL	KEYW	UNKNOWN UN	9.8	IC	FO2	P	U	
89/01	WSCC	CNV	CA	LDWP	HYPERION ENERGY SYS	43	CG	ZZ	P	CG	
89/01	WSCC	CNV	CA	PG&E	PVUSA 1	1	SO	SUN	P	U	
89/01	WSCC	CNV	CA	PG&E	QF COGENERATION 89	976	CG	UNK	P	CG	
89/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 89	48	GE	GST	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF HYDRO 89	40	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF WIND 89	43	WM	WND	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	5	HY	WAT	P	U	
89/01	WSCC	CNV	CA	RDNG	CAMAGE	20	CG	WD	P	CG	
89/01	WSCC	CNV	CA	SDGE	QF BIOGAS (1)	2	IC	ZZ	P	ZZ	
89/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
89/01	WSCC	NWP	OR	PPL	FRED EHLERS (1)	1	HY	WAT	P	ZZ	
89/01	WSCC	NWP	OR	PPL	PINE PRODUCTS	4	CG	WD	P	CG	
89/01	WSCC	NWP	WA	TCL	STEAM PLANT NO. 2	43	CG	REF	U	U	
89/02	NPCC	NE	ME	CEMP	LEWISTON ST&PR PH III inc	1.2	ST	REF	T	CG	
89/02	NPCC	NE	NH	PSNH	NEAF/SWANZEY PROJECT	15.7	ST	WD	U	CG	
89/02	SERC	SOU	GA	GEPC	SCHERER 4	801	ST	BIT	V	U	
89/03	NPCC	ONT	ON	ONHY	DARLINGTON 2	881	CD	UR	V	U	
89/03	WSCC	NWP	ID	WWPC	CLEARWATER POWER 1-2	1	HY	WAT	L	ZZ	
89/04	NPCC	NE	VT	VTGP	DODGE FALLS	2.5	HY	WAT	T	ZZ	
89/04	NPCC	NE	VT	VTGP	NO SPRINGFIELD	18	ST	WD	T	CG	
89/04	NPCC	NE	VT	VTGP	RYE GATE	18	ST	WD	T	CG	
89/05	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	20	CG	UNK	P	CG	
89/05	MAAC		DE	DPLC	Hay Road 2	102	GT	NG	L	U	
89/05	MAAC		UN	GPUS	Non-Utility Generation	14	UN	UNK	P	ZZ	
89/05	MAAC		UN	PSCO	Non-Utility Generation	46	UN	UNK	P	ZZ	
89/05	MAPP		MN	NSP	CLAY BOSWELL 4	71.3	ST	SUB	V	U	
89/05	NPCC	NY	NY	LOIL	Non-Utility Generators	20[a]	ZZ	UNK	P	ZZ	
89/05	NPCC	NY	NY	LOIL	West Babylon GT	238	GT	FO2	P	U	
89/05	NPCC	NY	NY	NEYE	Non-Utility Generators	52[a]	ZZ	UNK	P	ZZ	
89/05	NPCC	NY	NY	NIMP	Non-Utility Generators	250[a]	ZZ	UNK	T	ZZ	
89/05	NPCC	NY	NY	ORRU	Non-Utility Generators	4[a]	ZZ	UNK	P	ZZ	
89/05	NPCC	QUE	QB	HYQB	Manic 5 PA 1	245	HY	WAT	U	U	
89/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	97	UN	UNK	P	ZZ	
89/05	SERC	SOU	AL	ALAP	MILLER 3	666	ST	BIT	V	U	

---

[a] See Appendix D, page 1, footnote e.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
89/05	SERC	SOU	GA	GEPC	VOGTLE 2	1086	NP	UR	V	U	J
89/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	278	UN	UNK	P	ZZ	
89/05	SPP	N	MO	STJO	LAKE ROAD JET	15	JE	FO2	P	U	
89/05	SPP	WC	OK	OKGE	COGENERATOR - SCI	100	CT	NG	P	CG	
89/05	SPP	WC	OK	OMPA	KAW HYDRO	25	HY	WAT	U	U	
89/05	WSCC	CNV	CA	TID	DON PEDRO UNIT 4	32	HY	WAT	L	U	J
89/06	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #2	1250	NP	UR	V	U	J
89/06	MAAC		MD	BCCO	Bresco	55	ST	REF	P	CG	
89/06	SERC	FL	FL	KEYW	UNKNOWN UN	9.8	IC	FO2	P	U	
89/06	SPP	N	MO	SPRM	JRPS GT 1	67	GT	NG	P	U	
89/06	SPP	SE	TX	LUPL	WASTE RECOVERY 1	[illegible]	ST	REF	T	U	
89/06	WSCC	AZN	AZ	TEP	SPRINGERVILLE 2	[illegible]	ST	SUB	V	U	
89/06	WSCC	NWP	NV	SPP	GEOTHERMAL	50	GE	GST	P	ZZ	
89/06	WSCC	NWP	WA	GCPD	P.E.C. HEADWORKS	7	HY	WAT	U	ZZ	
89/06	WSCC	NWP	WA	WWPC	PANTHER CREEK (1)	1	HY	WAT	L	ZZ	
89/06	WSCC	RMP	CO	PSC	VALLECITO HYDRO	5	HY	WAT	T	ZZ	
89/07	ERCOT		TX	TUEC	COMANCHE PEAK #1	1150	NP	UR	V	U	J
89/07	NPCC	NY	NY	LOIL	Shoreham[a]	809	NB	UR	V	U	
89/07	NPCC	QUE	QB	HYQB	Manic 5 PA 2	245	HY	WAT	U	U	
89/07	SERC	FL	FL	ORLA	INDIAN RIVER PK1	35	GT	NG	P	U	J
89/07	WSCC		BC	WKPL	GAS TURBINES 1-2	116	GT	NG	L	U	
89/07	WSCC	AZN	NM	LAC	ABIQUIU 1	7	HY	WAT	V	U	
89/07	WSCC	AZN	NM	LAC	ABIQUIU 2	7	HY	WAT	V	U	
89/07	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	35	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	29	IC	UNK	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	149	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	266	CG	NG	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	5	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	110	GE	GST	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	10	HY	WAT	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	22	SO	SUN	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	13	WM	WND	P	ZZ	
89/07	WSCC	NWP	OR	PPL	CENTRAL OR POWER PROJ.	4	HY	WAT	P	ZZ	
89/07	WSCC	NWP	UT	UAMP	EAST CANYON 1 & 2	2	HY	WAT	T	U	
89/07	WSCC	NWP	UT	UAMP	LOST CREEK	1	HY	WAT	T	U	
89/08	MAAC		DE	DPLC	Hay Road 1	102	GT	NG	L	U	
89/08	NPCC	ONT	ON	ONHY	DARLINGTON 1	881	CD	UR	V	U	
89/09	NPCC	NE	NH	PSNH	CONCORD REG WASTE ENRGY PR.	10	ST	REF	U	CG	
89/09	NPCC	QUE	QB	HYQB	Manic 5 PA 3	245	HY	WAT	U	U	
89/09	SERC	FL	FL	ORLA	INDIAN RIVER PK2	35	GT	NG	P	U	J
89/09	WSCC	RMP	CO	PSC	PUEBLO CHEMICAL	65	CG	NG	T	CG	
89/10	WSCC		AB	EDMP	GENESEE 2	386	ST	SUB	V	U	
89/11	NPCC	NE	CT	NOEU	AES THAMES	180	ST	COL	U	CG	
89/11	NPCC	NE	ME	CEMP	UNITED AMERICAN HYDRO	5.4	HY	WAT	U	ZZ	
89/11	NPCC	NE	NH	PSNH	SEABROOK 1[b]	1150	NP	UR	V	U	
89/11	NPCC	NE	VT	VTGP	BIO-ENERGY	15	ST	WD	T	CG	
89/11	NPCC	NE	VT	VTGP	E. GEORGIA CO-GEN	29	ST	NG	V	CG	
89/11	NPCC	NE	VT	VTGP	WINOOSKI-1	3	HY	WAT	T	ZZ	
89/11	NPCC	NE	VT	VTGP	WINOOSKI-2	1.2	HY	WAT	U	ZZ	
89/11	NPCC	QUE	QB	HYQB	Manic 5 PA 4	245	HY	WAT	U	U	
89/11	SPP	SE	TX	LUPL	TECH 1	25	GT	NG	L	U	
89/12	ECAR		IN	AEP	Rockport 2	1300	ST	COL	V	U	
89/12	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-365	CG	UNK	P	CG	
89/12	MAAC		UN	GPUS	Non-Utility Generation	328	UN	UNK	P	ZZ	
89/12	NPCC	NE	NH	PSNH	DERRY WASTE BURNER	10.3	ST	REF	T	CG	
89/12	NPCC	NE	VT	VTGP	BALL MTN. DAM	2	HY	WAT	T	ZZ	
89/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	22[c]	ZZ	NG	V	ZZ	

---

[a] An agreement has been negotiated between the Long Island Lighting Company and New York state to close the 100% complete 809 MW Shoreham nuclear unit.

[b] Public Service of New Hampshire (PSNH) is unable to predict when or whether the Seabrook plant will be permitted to commence operation. However, for planning and reporting purposes, New England Power Planning (NEPLAN) is assuming commercial operation by November 1, 1989.

[c] Includes industrial non-utility generation, power from municipal waste, and small hydro developments.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
89/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	28[a]	ZZ	UNK	U	ZZ	
89/12	WSCC	NWP	ID	IPC	COGEN NO. 5	11	CG	UNK	P	CG	
89/12	WSCC	NWP	WA	PSPL	KOMA KULSHAN	12	HY	WAT	P	ZZ	
89/UN	NPCC	NE	MA	BECO	PEAT PROD OF AMERICA	22.8	ST	ZZ	U	CG	
89/UN	NPCC	NE	NH	PSNH	W. STEWARTSTOWN PROJECT	13.8	ST	WD	T	CG	
SUBTOTAL						15995					
90/01	ECAR		PA	APS	MILESBURG	43	ST	COL	P	ZZ	
90/01	ECAR		UN	CP	ONE FACILITY	20	UN	REF	P	ZZ	
90/01	ECAR		UN	DECO	ONE FACILITY	65	UN	REF	P	ZZ	
90/01	ERCOT		TX	BEPC	UNDESIGNATED	70	GT	NG	P	U	
90/01	ERCOT		TX	TUEC	COMANCHE PEAK #2	1150	NP	UR	V	U	J
90/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	T	U	
90/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	260	GT	NG	T	U	
90/01	MAPP		MN	NSP	WINONA-NSP 1	1.8	ST	ZZ	P	ZZ	
90/01	NPCC	NE	CT	NOEU	PERKIN ELMER	9.4	CC	NG	T	CG	
90/01	NPCC	NE	MA	COMW	NEA	25	CC	NG	T	CG	J
90/01	NPCC	NE	MA	COMW	PEPPERELL POWER	38	CC	NG	T	CG	
90/01	NPCC	NE	ME	CEMP	CARRABASSETT PWR ARS GRP	36.8	ST	WD	T	CG	
90/01	NPCC	NE	NH	PSNH	REMEDIAL RESOURCE RECOVERY	4	ST	REF	T	CG	
90/01	WSCC	CNV	CA	NCPA	HYDROELEC. PROJ NO. ONE	200	HY	WAT	V	U	J
90/01	WSCC	CNV	CA	PG&E	PVUSA 2	1	SO	SUN	P	U	
90/01	WSCC	CNV	CA	PG&E	QF COGENERATION 90	259	CG	UNK	P	CG	
90/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 90	40	GE	GST	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF HYDRO 90	133	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF WIND 90	9	WM	WND	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	20	HY	WAT	P	U	
90/01	WSCC	CNV	CA	SCE	COOLWATER IGCC	100	ST	ZZ	V	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF BIOMASS (1)	12	ST	REF	P	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF COGENERATION (1)	40	CG	ZZ	P	CG	
90/01	WSCC	CNV	CA	SDGE	QF COGENERATION (3)	108	CG	NG	P	CG	
90/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	150	ZZ	UNK	P	U	
90/01	WSCC	NWP	OR	PPL	LITTLE GREYBACK	0	HY	WAT	P	ZZ	
90/01	WSCC	NWP	WA	TCL	WYNOCHEE 1	0	HY	WAT	T	U	
90/01	WSCC	RMP	CO	PSC	HORSE MOUNTAIN POWER GEN	50	CG	BIT	T	CG	
90/02	ECAR		WV	APS	SUTTON	3	HY	WAT	P	ZZ	
90/03	ECAR		MI	CP	MCV	800	CC	NG	P	ZZ	
90/03	MAAC		UN	GPUS	Non-Utility Generation	46	UN	UNK	P	ZZ	
90/03	SERC	SOU	GA	SEPA	RUSSELL HYDRO #5	75	PS	WAT	V	U	
90/03	WSCC		MX	CFE	ROSARITO II #1	145	ST	FO6	U	U	
90/04	MAIN	WUM	WI	MPU	BOILER ADDITION	13	ST	BIT	P	U	
90/04	NPCC	NE	VT	VTGP	MOORETOWN-8	.6	HY	WAT	U	ZZ	
90/04	WSCC	CNV	CA	LDWP	COSO 1	10	GE	ZZ	P	U	
90/05	ECAR		UN	APS	PURPA 2	3	HY	WAT	P	ZZ	
90/05	ERCOT		TX	AUST	VALLEY VIEW-NUG	49	ZZ	UNK	V	ZZ	
90/05	MAAC		NJ	AECO	AE Combustion Turbine	90	GT	NG	P	U	
90/05	MAAC		NJ	AECO	Qualifying Facility 1	140	CT	NG	P	ZZ	
90/05	MAAC		UN	GPUS	Non-Utility Generation	11	UN	UNK	P	ZZ	
90/05	MAAC		UN	PPCO	Combustion Turbine	70	GT	FO2	P	U	
90/05	MAAC		UN	PSCO	Non-Utility Generation	113	UN	UNK	P	ZZ	
90/05	MAPP		MN	NSP	HENNEPIN CO-NSP 1	38	ST	ZZ	P	ZZ	
90/05	NPCC	NY	NY	LOIL	Non-Utility Generators	120[b]	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	NEYE	Non-Utility Generators	67[b]	ZZ	UNK	L	ZZ	
90/05	NPCC	NY	NY	NIMP	Non-Utility Generators	307[b]	ZZ	UNK	T	ZZ	
90/05	NPCC	NY	NY	NIMP	Non-Utility Generators	40[b]	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	NIMP	Non-Utility Generators	405[b]	ZZ	UNK	L	ZZ	
90/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	295	UN	UNK	P	ZZ	

---

[a] See Appendix D, page 4, footnote c.
[b] See Appendix D, page 1, footnote e.

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
90/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	696	UN	UNK	P	ZZ	
90/06	MAIN	WUM	WI	MARF	WILDWOOD 6-8	15	IC	FO2	P	U	
90/06	SERC	VAC	GA	SEPA	Russell Hydro 6	75	PS	WAT	U	U	
90/06	SERC	VAC	VA	VIEP	Chesterfield 7	127	CT	NG	U	U	
90/06	SERC	VAC	VA	VIEP	Chesterfield 7	58	ST	WH	U	U	
90/07	ECAR		UN	APS	PURPA 3	80	ST	COL	P	ZZ	
90/07	ERCOT		TX	HL&P	AES DEEPWATER-NUG	136	ST	PC	P	CG	
90/07	NPCC	NE	MA	COMW	LEE MILLS COGEN	47	CC	NG	T	CG	
90/07	NPCC	NY	NY	POAS	Crescent	12	HY	WAT	P	U	
Under Review[a]	SERC	TVA	TN	TEVA	WATTS BAR 1	1170	NP	UR	V	U	
90/07	WSCC	CNV	CA	GLEN	SCHOLL CANYON 2	12	IC	REF	U	U	
90/07	WSCC	CNV	CA	SCE	BATTERY STORAGE	10	ZZ	UNK	U	U	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	86	IC	UNK	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	7	CG	NG	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	7	CG	UNK	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	147	GE	GST	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	14	SO	SUN	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	6	WM	WND	P	ZZ	
90/08	NPCC	NE	VT	VTGP	KTZ ENERGY	4.6	ST	REF	T	CG	
90/08	WSCC	RMP	CO	PSC	STAGECOACH (1)	1	HY	WAT	T	ZZ	
90/09	NPCC	NE	ME	CEMP	ANDRO 1,2,&3	1.7	HY	WAT	U	ZZ	
90/09	NPCC	NE	ME	CEMP	MONTY	25	HY	WAT	U	U	
90/09	SERC	SOU	GA	SEPA	RUSSELL HYDRO #7	75	PS	WAT	V	U	
90/09	WSCC		MX	CFE	ROSARITO II #2	145	ST	FO6	T	U	
90/09	WSCC	RMP	CO	PSC	MONFORT COGEN	120	CG	NG	T	CG	
90/10	ERCOT		TX	AUST	REFUSE #1	20	ST	REF	U	U	
90/10	MAAC		PA	PECO	Limerick 2	1055	NB	UR	V	U	
90/10	MAPP		SA	SPC	FUTURE PEAKING 1	46	GT	NG	P	U	
90/10	MAPP		SA	SPC	FUTURE PEAKING 2	46	GT	NG	P	U	
90/10	WSCC		AB	TAUC	SHEERNESS 2	366	ST	SUB	V	U	J
90/11	MAPP		MB	MHEB	LIMESTONE 1	120	HY	WAT	U	U	
90/11	NPCC	NE	VT	VTGP	NON TROY	.4	HY	WAT	U	ZZ	
90/12	ECAR		MI	CP	MCV	440	CC	NG	P	ZZ	
90/12	ERCOT		TX	AUST	VALLEY VIEW-NUG	49	ZZ	UNK	P	ZZ	
90/12	MAAC		UN	GPUS	Non-Utility Generation	110[b]	UN	UNK	P	ZZ	
90/12	MAPP		MB	MHEB	LIMESTONE 2	120	HY	WAT	U	U	
90/12	NPCC	NE	MA	OSPC	OCEAN STATE POWER 1	225	CC	NG	L	ZZ	J
90/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	75[c]	ZZ	UNK	T	ZZ	
90/12	SERC	VAC	GA	SEPA	Russell Hydro 8	75	PS	WAT	U	U	
90/12	WSCC	NWP	ID	IPC	COGEN NO. 6	7	CG	UNK	P	CG	
90/12	WSCC	RMP	CO	USUC	MCPHEE POWER PLANT	1	HY	WAT	P	U	
90/UN	NPCC	NE	CT	NOEU	SCRRRA PRESTON	13.9	ST	REF	T	CG	
90/UN	NPCC	NE	CT	NOEU	UNIROYAL	24	ST	WD	T	CG	
SUBTOTAL						11686					
91/01	ECAR		UN	APS	PURPA 4	10	HY	WAT	P	ZZ	
91/01	ECAR		UN	DECO	ONE FACILITY	6	UN	UNK	P	ZZ	
91/01	ERCOT		TX	BEPC	UNDESIGNATED	70	GT	NG	P	U	
91/01	NPCC	NE	CT	NOEU	BIOGEN	13	ST	WD	T	CG	
91/01	NPCC	NE	CT	NOEU	EXETER	24.5	ST	ZZ	T	CG	
91/01	NPCC	NE	ME	CEMP	BOISE CASCADE	29	ST	WD	U	CG	
91/01	WSCC	AZN	AZ	APS	SOLAR 1	2	SO	SUN	U	U	
91/01	WSCC	CNV	CA	PG&E	PVUSA 3	1	SO	SUN	P	U	
91/01	WSCC	CNV	CA	PG&E	QF COGENERATION 91	14	CG	UNK	P	CG	
91/01	WSCC	CNV	CA	PG&E	QF HYDRO 91	3	HY	WAT	P	ZZ	
91/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	17	HY	WAT	P	U	
91/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 91	2	HY	WAT	P	U	

---

[a] TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup date for this capacity under construction is July, 1990.

[b] Facilities qualifying under PURPA regulations which may be waste burning (trash, waste coal), small hydro, third party financed or self-generation, cogeneration (in excess of internal load served), wind, solar, etc.

[c] See Appendix D, page 4, footnote c.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
91/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
91/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
91/01	WSCC	NWP	OR	PPL	TUMULO IRRIG. DIST.	1	HY	WAT	P	ZZ	
91/01	WSCC	RMP	CO	PSC	AMERICAN ATLAS NO. 3	80	CG	NG	T	CG	
91/02	MAPP		MB	MHEB	LIMESTONE 3	120	HY	WAT	U	U	
91/03	NPCC	NE	MA	OSPC	OCEAN STATE POWER 2	225	CC	NG	L	ZZ	J
91/03	SPP	N	KS	KACP	LACYGNE 2	18	ST	SUB	P	U	
91/03	WSCC	RMP	CO	PSC	SOUTH CANYON GEO	10	GE	GST	T	ZZ	
91/03	WSCC	RMP	WY	USMB	SHOSHONE	21	HY	WAT	U	U	
91/04	MAPP		MB	MHEB	LIMESTONE 4	120	HY	WAT	U	U	
91/04	WSCC	RMP	CO	PSC	SOLID WASTE NO. 1	5	ST	REF	P	ZZ	
91/05	MAAC		MD	DPLC	Easton Unidentified CT	15	IC	UNK	P	U	
91/05	MAAC		UN	PPCO	Combustion Turbine	70	GT	FO2	P	U	
91/05	MAAC		UN	PPCO	SMECO CT	60	GT	NG	L	U	
91/05	MAAC		UN	PSCO	Non-Utility Generation	410	UN	UNK	P	ZZ	
91/05	NPCC	NY	NY	LOIL	Non-Utility Generators	90[a]	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	NEYE	Non-Utility Generators	59[a]	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	NIMP	Non-Utility Generators	104[a]	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	NIMP	Non-Utility Generators	16[a]	ZZ	UNK	T	ZZ	
91/05	NPCC	NY	NY	NIMP	Non-Utility Generators	237[a]	ZZ	UNK	L	ZZ	
91/05	NPCC	NY	NY	ORRU	Non-Utility Generators	16[a]	ZZ	UNK	P	ZZ	
91/05	NPCC	ONT	ON	ONHY	DARLINGTON 3	881	CD	UR	U	U	
91/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	53	UN	UNK	P	ZZ	
91/05	SERC	SOU	AL	ALAP	MILLER 4	666	ST	BIT	U	U	
91/05	SERC	VAC	SC	DUPC	Bad Creek 1	250	PS	WAT	U	U	
91/05	SERC	VAC	SC	DUPC	Bad Creek 2	250	PS	WAT	U	U	
91/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	573	UN	UNK	P	ZZ	
91/05	SPP	WC	OK	OKGE	COGENERATOR - AES	300	ST	BIT	P	CG	
91/06	ECAR		OH	CG&E	W.H. Zimmer 1[b]	1300	ST	COL	U	U	J
91/06	NPCC	NE	VT	VTGP	FAIRFAX FALLS	2.8	HY	WAT	P	U	
91/06	NPCC	NY	NY	NIMP	South Glens Falls	14	HY	WAT	P	U	
91/06	SERC	SOU	AL	ALEC	CAES 1[c]	110	ZZ	NG	P	U	
91/06	SERC	SOU	AL	ALEC	DEMOPOLIS	50	HY	WAT	P	U	
91/06	WSCC	RMP	CO	PSC	SUNLAWN EASTSIDE	25	CG	BIT	T	CG	
91/07	ECAR		KY	LG&E	Trimble County i	495	ST	COL	U	U	
91/07	ECAR		WV	APS	GRANT TOWN	80	ST	COL	P	ZZ	
91/07	MAPP		MB	MHEB	LIMESTONE 5	120	HY	WAT	U	U	
91/07	NPCC	NY	NY	NIMP	Hudson Falls	36	HY	WAT	P	U	
91/07	NPCC	NY	NY	POAS	Non-Utility Generators	4[a]	ZZ	UNK	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	17	IC	UNK	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	78	CG	UNK	P	CG	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	4	GE	GST	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	7	SO	SUN	P	ZZ	
91/08	MAAC		UN	GPUS	Non-Utility Generation	80[d]	UN	UNK	P	ZZ	
91/09	WSCC	CNV	CA	CDWR	DEVIL CANYON 3	80	HY	WAT	L	U	
91/10	ECAR		PA	APS	BURGETTSTOWN	80	ST	COL	P	ZZ	
91/10	ECAR		UN	APS	PURPA 5	50	ST	COL	P	ZZ	
91/10	MAPP		MB	MHEB	LIMESTONE 6	120	HY	WAT	U	U	
91/10	MAPP		SA	SPC	FUTURE PEAKING 3	46	GT	NG	P	U	
91/10	NPCC	NS	NS	NSPC	TRENTON #6	150	ST	BIT	L	U	
91/10	WSCC		AB	EDMP	GENESEE 1	386	ST	SUB	U	U	
91/11	WSCC	CNV	CA	PG&E	GEYSERS 21	140	GE	GST	T	U	
91/12	MAAC		UN	GPUS	Non-Utility Generation	335[d]	UN	UNK	P	ZZ	
91/12	MAPP		MB	MHEB	LIMESTONE 7	120	HY	WAT	U	U	
91/12	WSCC	CNV	CA	CDWR	DEVIL CANYON 4	80	HY	WAT	P	U	
91/12	WSCC	NWP	ID	IPC	COGEN NO. 7	6	CG	UNK	P	CG	
SUBTOTAL						8908					

---

[a] See Appendix D, page 1, footnote e.

[b] The owners of this plant, which has been under construction as a nuclear unit, announced on January 21, 1984, that the plant will be converted from nuclear to coal-fired.

[c] Compressed air energy storage.

[d] See Appendix D, page 6, footnote b.

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
92/01	ECAR		PA	APS	PT. MARION	2	HY	WAT	P	ZZ	
92/01	ECAR		UN	DECO	ONE FACILITY	2	HY	WAT	P	ZZ	
92/01	ECAR		UN	DECO	TOTAL OF 2 FACILITIES	5	UN	UNK	P	ZZ	
92/01	ERCOT		TX	BEPC	UNDESIGNATED	210	CC	NG	P	U	
92/01	MAAC		NJ	AECO	Resource Recovery 1	12	ZZ	REF	P	U	
92/01	NPCC	NE	CT	NOEU	ARS	32.2	ST	WD	T	CG	
92/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[a]	ZZ	UNK	P	ZZ	
92/01	SERC	FL	FL	HSTM	IVEY 22	10	IC	NG	P	U	
Under Review[b]	SERC	TVA	TN	TEVA	WATTS BAR2	1170	NP	UR	V	U	
92/01	WSCC	CNV	CA	PG&E	QF WIND 92	4	WM	WND	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	109	HY	WAT	P	U	
92/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 92	2	HY	WAT	P	U	
92/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
92/01	WSCC	NWP	WA	PSPL	TWIN FALLS	20	HY	WAT	P	ZZ	
92/02	NPCC	ONT	ON	ONHY	DARLINGTON 4	881	CD	UR	U	U	
92/02	WSCC		MX	CFE	CERRO PRIETO IV UNIT 1	50	GE	GST	L	U	
92/04	ECAR		UN	CG&E	New GT 1	60	GT	NG	P	U	
92/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
92/04	MAAC		MD	BCCO	Brandon Shores 2	640	ST	BIT	U	U	
92/04	NPCC	NE	VT	VTGP	C. RUTLAND	.3	HY	WAT	P	U	
92/05	ERCOT		TX	CPSA	CALAVERAS #5	498	ST	LIG	L	U	
92/05	ERCOT		TX	CPSA	MSW-LCP	36	ST	REF	P	U	
92/05	ERCOT		TX	TUEC	UNSPECIFIED RESOURCES-NUG	100	CG	UNK	P	CG	
92/05	MAAC		NJ	AECO	Qualifying Facility 2	180	CT	NG	P	ZZ	
92/05	MAAC		UN	DPLC	Unidentified	100	UN	UNK	P	U	
92/05	MAAC		UN	GPUS	Combustion Turbines	200	GT	NG	P	U	
92/05	MAAC		UN	PPCO	Combustion Turbine	70	GT	FO2	P	U	
92/05	MAAC		UN	PSCO	Non-Utility Generation	35	UN	UNK	P	ZZ	
92/05	MAPP		MB	MHEB	LIMESTONE 8	120	HY	WAT	U	U	
92/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[c]	ZZ	UNK	P	ZZ	
92/05	NPCC	NY	NY	NEYE	Non-Utility Generators	10[c]	ZZ	UNK	P	ZZ	
92/05	NPCC	NY	NY	NIMP	Non-Utility Generators	5[c]	ZZ	UNK	L	ZZ	
92/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	123	UN	UNK	P	ZZ	
92/05	SERC	VAC	SC	DUPC	Bad Creek 3	250	PS	WAT	U	U	
92/05	SERC	VAC	SC	DUPC	Bad Creek 4	250	PS	WAT	U	U	
92/05	SERC	VAC	UN	SOCG	Undesignated 1	34	CW	WH	P	U	
92/05	SERC	VAC	UN	SOCG	Undesignated 1	75	CT	FO2	P	U	
92/05	SERC	VAC	UN	SOCG	Undesignated 2	34	CW	WH	P	U	
92/05	SERC	VAC	UN	SOCG	Undesignated 2	75	CT	FO2	P	U	
92/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	182	UN	UNK	P	ZZ	
92/05	WSCC	NWP	WA	PSPL	WHITE RIVER FLUME	14	HY	WAT	L	U	
92/05	WSCC	RMP	CO	USUC	TOWAOC	11	HY	WAT	P	U	
92/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
92/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
92/06	SERC	VAC	VA	VIEP	Chesterfield 8	127	CT	NG	P	U	
92/06	SERC	VAC	VA	VIEP	Chesterfield 8	58	ST	WH	P	U	
92/06	WSCC	CNV	CA	LDWP	GENERIC 1992	100	ZZ	UNK	P	U	
92/06	WSCC	NWP	WA	TCL	BARRIER 1-2	0	HY	WAT	P	U	
92/07	MAPP		SA	SPC	SHAND 1	280	ST	LIG	L	U	
92/07	NPCC	NY	NY	POAS	Non-Utility Generators	3[c]	ZZ	UNK	P	ZZ	
92/07	WSCC	CNV	CA	LDWP	SMALL HYDRO DEV	6	HY	WAT	P	U	
92/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	3	SO	SUN	P	ZZ	
92/08	MAPP		MB	MHEB	LIMESTONE 9	120	HY	WAT	U	U	
92/08	NPCC	QUE	QB	HYQB	LG 2 PA 1	316	HY	WAT	T	U	
92/09	ECAR		PA	APS	SHANNOPIN	80	ST	COL	P	ZZ	
92/09	WSCC	RMP	CO	USUC	RIDGEWAY POWER PLANT	4	HY	WAT	P	U	
92/10	NPCC	QUE	QB	HYQB	LG 2 PA 2	316	HY	WAT	T	U	

---

[a] See Appendix D, page 4, footnote c.

[b] TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup date for this capacity under construction is January 1992.

[c] See Appendix D, page 1, footnote e.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTIL~~ITY OWNED~~)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
92/11	MAPP		MB	MHEB	LIMESTONE 10	120	HY	WAT	U	U	
92/11	NPCC	NE	ME	BAHE	MILFORD	1.2	HY	WAT	P	U	
92/11	NPCC	NE	ME	BAHE	VEAZIE	4.3	HY	WAT	P	U	
92/12	MAAC		UN	GPUS	Non-Utility Generation	86[a]	UN	UNK	P	ZZ	
92/12	NPCC	QUE	QB	HYQB	LG 2 PA 3	316	HY	WAT	T	U	
92/12	WSCC	NWP	ID	IPC	COGEN NO. 8	6	CG	UNK	P	CG	
92/12	WSCC	NWP	WA	PSPL	NOOKSACK FALLS	8	HY	WAT	L	U	
92/12	WSCC	NWP	WA	PSPL	THUNDER CREEK	9	HY	WAT	L	U	
SUBTOTAL						7890					
93/01	ECAR		UN	DECO	UNDESIGNATED NUMBER	50	UN	UNK	P	ZZ	
93/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	P	U	
93/01	MAAC		NJ	AECO	Qualifying Facility 3	160	CT	NG	P	ZZ	
93/01	NPCC	NY	NY	NIMP	High Dam	2.5	HY	WAT	P	U	
93/01	NPCC	NY	NY	NIMP	Oswego Falls West	5.5	HY	WAT	P	U	
93/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[b]	ZZ	UNK	P	ZZ	
93/01	SERC	FL	FL	HSTM	G. W. IVEY 22	10	IC	NG	P	U	
93/01	SERC	FL	FL	SECI	UNKNOWN 1-2	440	CC	NG	P	U	
93/01	SERC	FL	FL	TAEC	UNKNOWN CT-1	75	GT	FO2	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 93	25	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	37	HY	WAT	P	U	
93/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
93/01	WSCC	NWP	OR	IPC	SMALL HYDRO	6	HY	WAT	P	ZZ	
93/02	WSCC		MX	CFE	CERRO PRIETO IV UNIT 2	50	GE	GST	T	U	
93/03	SPP	N	MO	KACP	WASTE-TO-ENERGY	30	ST	REF	P	U	
93/03	WSCC	NWP	ID	USPN	MINIDOKA 1-5	20	HY	WAT	P	U	
93/04	ECAR		UN	CG&E	New GT 2	60	GT	NG	P	U	
93/04	ECAR		UN	CG&E	New GT 3	60	GT	NG	P	U	
93/04	WSCC	RMP	CO	CCS	GEORGE BIRDSALL CT 1	54	GT	NG	P	U	
93/04	WSCC	RMP	CO	PSC	RENEWABLE NO. 1	10	ST	ZZ	P	ZZ	
93/04	WSCC	RMP	CO	PSC	SOLID WASTE NO. 2	5	ST	REF	P	ZZ	
93/05	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	400	ZZ	UNK	P	ZZ	
93/05	MAAC		UN	PPCO	Muni. Solid Waste	40	ST	REF	P	U	
93/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[c]	ZZ	UNK	P	ZZ	
93/05	NPCC	NY	NY	NIMP	Non-Utility Generators	200[c]	ZZ	UNK	L	ZZ	
93/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	269	UN	UNK	P	ZZ	
93/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	340	UN	UNK	P	ZZ	
93/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
93/06	MAIN	WUM	WI	WEP	HYDRO	3	HY	WAT	P	U	
93/06	SERC	SOU	MS	SOMI	HATTIESBURG	70	CT	NG	P	U	
93/06	SPP	N	KS	EMDE	RIVERTON 12	75	ST	COL	P	U	
93/06	WSCC	CNV	CA	LDWP	GENERIC 1993	100	ZZ	UNK	P	U	
93/06	WSCC	CNV	NV	NEVP	COMBINED CYCLE 1	210	CW	RG	P	U	
93/06	WSCC	NWP	WA	TCL	HOWARD HANSON 1-3	0	HY	WAT	P	U	
93/07	MAPP		ND	MDU	SGI INTERNATL-MDU 1	25	ST	LIG	P	ZZ	
93/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	11	IC	UNK	P	ZZ	
93/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	17	GE	GST	P	ZZ	
93/08	NPCC	QUE	QB	HYQB	LG 2 PA 4	316	HY	WAT	T	U	
93/09	WSCC	NWP	WA	PSPL	NOISY CREEK	11	HY	WAT	L	U	
93/09	WSCC	NWP	WA	PSPL	SWIFT CREEK	9	HY	WAT	L	U	
93/09	WSCC	NWP	WA	TCL	ELKHORN 1-2	0	HY	WAT	P	U	
93/10	NPCC	NS	NS	NSPC	NEW COAL A, #1	150	ST	BIT	P	U	
93/10	NPCC	QUE	QB	HYQB	LG 2 PA 5	316	HY	WAT	T	U	
93/10	WSCC	CNV	CA	CDWR	SAN LUIS OBISPO (1)	5	HY	WAT	P	U	
93/11	NPCC	NB	NB	NBPO	Pulverised Coal #1	400	ST	COL	P	U	
93/11	SERC	FL	FL	FLPC	COMBUSTION TURBINE 1-3	390	GT	FO2	P	U	
93/12	ERCOT		TX	HL&P	OCCIDENTAL-NUG	-225[d]	CT	NG	P	ZZ	
93/12	NPCC	QUE	QB	HYQB	LG 2 PA 6	316	HY	WAT	T	U	
SUBTOTAL						4838					

---

[a] See Appendix D, page 6, footnote b.
[b] See Appendix D, page 4, footnote c.
[c] See Appendix D, page 1, footnote e.
[d] Contract expires.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
94/01	ECAR		UN	DECO	ONE FACILITY	1	HY	WAT	P	ZZ	
94/01	ERCOT		TX	BEPC	UNDESIGNATED	210	CC	NG	P	U	
94/01	ERCOT		TX	TUEC	TWIN OAK #1	750	ST	LIG	U	U	
94/01	NPCC	NE	MA	COMW	COMBINED CYCLE	99.6	CC	NG	P	U	
94/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	30[a]	ZZ	UNK	P	ZZ	
94/01	SERC	FL	FL	FLPL	COMBINED CYCLES 1-2	770	CC	NG	P	U	
94/01	SERC	FL	FL	TAEC	UNKNOWN CT-2	75	GT	FO2	P	U	
Under Review[b]	SERC	TVA	AL	TEVA	BELLEFONTE 1	1212	NP	UR	V	U	
94/01	WSCC	CNV	CA	CDWR	MOJAVE SIPHON 1	7	HY	WAT	P	U	
94/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 94	25	HY	WAT	P	U	
94/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #1	3	HY	WAT	T	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #2	3	HY	WAT	T	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #3	4	HY	WAT	T	U	
94/03	WSCC		MX	CFE	ENSENADA 1	145	ST	FO6	P	U	
94/04	ECAR		UN	CG&E	New GT 4	60	GT	NG	P	U	
94/04	ECAR		UN	CG&E	New GT 5	60	GT	NG	P	U	
94/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
94/04	WSCC	NWP	WA	SCL	SOUTH FORK TOLT	15	HY	WAT	L	U	
94/05	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	100	ZZ	UNK	P	ZZ	
94/05	MAAC		UN	PPCO	GCC Component	125	CT	FO2	L	U	
94/05	MAAC		UN	PSCO	Non-Utility Generation	40	UN	UNK	P	ZZ	
94/05	NPCC	NY	NY	COEN	Non-Utility Generators	218[c]	ZZ	UNK	P	ZZ	
94/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[c]	ZZ	UNK	P	ZZ	
94/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	22	UN	UNK	P	ZZ	
94/05	SERC	VAC	UN	SOCG	Undesignated 3	34	CW	WH	P	U	
94/05	SERC	VAC	UN	SOCG	Undesignated 3	75	CT	FO2	P	U	
94/05	SERC	VAC	UN	SOCG	Undesignated 4	34	CW	WH	P	U	
94/05	SERC	VAC	UN	SOCG	Undesignated 4	75	CT	FO2	P	U	
94/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	305	UN	UNK	P	ZZ	
94/05	WSCC	CNV	CA	CDWR	MOJAVE SIPHON 2	7	HY	WAT	P	U	
94/06	SERC	SOU	AL	ALEC	CAES 2[d]	110	ZZ	NG	P	U	
94/06	WSCC	CNV	CA	LDWP	GENERIC 1994	100	ZZ	UNK	P	U	
94/06	WSCC	CNV	NV	NEVP	COMBINED CYCLE 2	210	CW	RG	P	U	
94/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	16	GE	GST	P	ZZ	
94/10	NPCC	NS	NS	NSPC	NEW COAL B, #1	300	ST	BIT	P	U	
94/10	NPCC	ONT	ON	ONHY	KIPLING EXTN. 1	66	HY	WAT	P	U	
94/10	WSCC		AB	TAUC	GAS TURBINE 1	81	GT	NG	P	U	
94/10	WSCC		AB	TAUC	GAS TURBINE 2	81	GT	NG	P	U	
94/11	SERC	FL	FL	FLPC	COMBINED CYCLE 1	192	CC	FO2	P	U	
94/11	WSCC	CNV	CA	PG&E	GEYSERS 22	140	GE	GST	P	U	
94/12	ERCOT		TX	HL&P	DOW CHEMICAL-NUG	-325[e]	GT	NG	P	ZZ	
94/12	MAAC		UN	GPUS	Combustion Turbines	200	GT	NG	P	U	
94/12	MAIN	WUM	WI	MPU	MANITOWOC 8	60	ST	BIT	P	U	
94/12	MAPP		IA	ISU	BURLINGTON CT 1	50	GT	NG	P	U	
94/WI	MAIN	WUM	WI	MGE	COMBUSTION TURBINE	50	UN	NG	P	U	
SUBTOTAL						5981					
95/01	ECAR		UN	DECO	TOTAL OF 2 FACILITIES	6	UN	REF	P	ZZ	
95/01	ECAR		UN	EKPC	Unknown[f]	60	UN	UNK	P	U	
95/01	ERCOT		TX	TUEC	TWIN OAK #2	750	ST	LIG	U	U	
95/01	MAAC		NJ	AECC	Resource Recovery 2	11	ZZ	REF	P	U	
95/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	30[a]	ZZ	UNK	P	ZZ	
95/01	SERC	FL	FL	FLPL	IGCC 1	766	IG	BIT	P	U	
95/01	SERC	FL	FL	LALW	UNKNOWN 1	50	ST	FO6	P	U	
95/01	SERC	FL	FL	TAEC	UNKNOWN CT-3	75	GT	FO2	P	U	
95/01	WSCC	AZN	AZ	APS	SOLAR 2	8	SO	SUN	P	U	

[a] See Appendix D, page 4, footnote c.

[b] TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup date for this capacity under construction is January 1994.

[c] See Appendix D, page 1, footnote e.

[d] Compressed Air Energy Storage.

[e] Contract expires.

[f] Best combination of combustion turbines, load management, dispersed generation and/or firm purchases.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
95/01	WSCC	AZN	AZ	USLC	WADDELL (4)	0	HY	WAT	U	U	
95/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 95	25	HY	WAT	P	U	
95/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 95	2	HY	WAT	P	U	
95/01	WSCC	CNV	CA	RDNG	LAKE REDDING	8	HY	WAT	L	U	
95/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 1	120	CT	NG	P	U	
95/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 1	80	CA	NG	P	U	
95/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	50	ZZ	UNK	P	U	
95/01	WSCC	NWP	ID	IPC	TWIN FALLS EXPANSION	6	HY	WAT	L	U	
95/03	ERCOT		TX	HL&P	BAYOU COGENERATION - NUG	-270[a]	GT	NG	P	ZZ	
95/03	WSCC	NWP	ID	TCL	A.J. WILEY 1-3	0	HY	WAT	P	U	
95/04	ECAR		UN	CG&E	New GT 6	60	GT	NG	P	U	
95/04	ECAR		UN	CG&E	New GT 7	60	GT	NG	P	U	
95/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
95/04	NPCC	ONT	ON	ONHY	SMOKEY FALLS EXTN. 1-2	207	HY	WAT	P	U	
95/04	WSCC	RMP	CO	CCS	GEORGE BIRDSALL CT 2	54	GT	NG	P	U	
95/04	WSCC	RMP	CO	PSC	RENEWABLE NO. 2	5	ST	ZZ	P	ZZ	
95/05	MAAC		MD	DPLC	Easton Unidentified CT	20	UN	UNK	P	U	
95/05	MAAC		UN	PPCO	GCC Component	125	CT	FO2	L	U	
95/05	MAPP		UN	NSP	FUTURE GT 1	150	GT	NG	P	U	
95/05	NPCC	NY	NY	CEHG	Non-Utility Generators	11[b]	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[b]	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	ORRU	Non-Utility Generators	44[b]	ZZ	UNK	P	ZZ	
95/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	44	UN	UNK	P	ZZ	
95/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	349	UN	UNK	P	ZZ	
95/05	SPP	N	MO	STJO	PEAK CAPACITY	65	GT	FO2	P	U	
95/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
95/06	SPP	N	MO	EMDE	ENERGY CENTER 3	75	CA	NG	P	U	
95/06	WSCC	CNV	CA	LDWP	COSO 2	50	GE	ZZ	P	U	
95/06	WSCC	CNV	CA	LDWP	GENERIC 1995	100	ZZ	UNK	P	U	
95/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE 1	70	GT	FO2	P	U	
95/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	25	GE	GST	P	ZZ	
95/10	ECAR		UN	APS	PURPA 6	130	ST	COG	P	ZZ	
95/10	ECAR		UN	APS	PURPA 7	180	ST	COL	P	ZZ	
95/10	ECAR		UN	APS	PURPA CONTINGENCY	-80[c]	UN	UNK	P	ZZ	
95/10	MAPP		SA	SPC	FUTURE HYDRO I 1	92	HY	WAT	P	U	
95/10	NPCC	NS	NS	NSPC	NEW COAL A, #2	150	ST	BIT	P	U	
95/10	WSCC		AB	TAUC	NEW STEAM 1	360	ST	SUB	P	U	
95/11	NPCC	NB	NB	NBPO	Pulverised Coal #2	200	ST	COL	P	U	
95/11	NPCC	NE	ME	BAHE	BASIN MILLS	16.8	HY	WAT	P	U	
95/11	NPCC	ONT	ON	ONHY	HARMON EXTN. 1	74	HY	WAT	P	U	
95/11	SERC	FL	FL	FLPC	COMBUSTION TURBINE 4-5	260	GT	FO2	P	U	
95/12	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-70	ZZ	UNK	P	ZZ	
95/12	MAAC		UN	GPUS	Combined Cycle	100	CW	NG	P	U	
95/12	MAAC		UN	GPUS	Combustion Turbines	200	GT	NG	P	U	
95/12	NPCC	QUE	QB	HYQB	La Grande 1 1-12	1368	HY	WAT	T	U	
95/12	NPCC	QUE	QB	HYQB	Laforge 1 1-6	829	HY	WAT	T	U	
SUBTOTAL						7271					
96/01	ECAR		UN	DECO	TOTAL OF 2 FACILITIES	11	UN	REF	P	ZZ	
96/01	ECAR		UN	EKPC	Unknown	60	UN	UNK	P	U	
96/01	ERCOT		TX	BEPC	SAN MIGUEL #2	400	ST	LIG	P	U	J
96/01	ERCOT		TX	BEPC	UNDESIGNATED 2 UNITS	140	GT	NG	P	U	
96/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	GT	NG	P	U	
96/01	MAPP		NE	OPPD	FUTURE GT 1	80	GT	FO2	P	U	
96/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	30[d]	ZZ	UNK	P	ZZ	
96/01	SERC	FL	FL	FLPL	IGCC 2	766	IG	BIT	P	U	
96/01	SERC	FL	FL	TAEC	UNKNOWN CT-4	75	CT	FO2	P	U	

---

[a] Contract expires.

[b] See Appendix D, page 1, footnote e.

[c] PURPA contingency to recognize that not all of the PURPA capacity will finally be developed.

[d] See Appendix D, page 4, footnote c.

North American
Electric
Reliability
Council

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
Under Review[a]	SERC	TVA	AL	TEVA	BELLEFONTE 2	1212	NP	UR	V	U	
96/01	WSCC	AZN	AZ	APS	GENERIC COGEN 1	2	CG	UNK	L	CG	
96/01	WSCC	AZN	AZ	APS	REFUSE 1	10	ZZ	REF	L	U	
96/01	WSCC	AZN	AZ	USLC	WADDELL (4)	45	HY	WAT	U	U	
96/01	WSCC	AZN	TX	EPE	GENERIC STATION	75	GT	NG	P	U	
96/01	WSCC	CNV	CA	RDNG	LAKE RED BLUFF	4	HY	WAT	L	U	
96/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 2	120	CT	NG	P	U	
96/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 2	80	CA	NG	P	U	
96/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	100	ZZ	UNK	P	U	
96/03	SERC	SOU	GA	GEPC	ROCKY MTN 1-3	848	PS	WAT	U	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 1	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 2	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 3	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 4	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 5	105	GT	NG	P	U	
96/04	ECAR		UN	CG&E	New GT 10	60	GT	NG	P	U	
96/04	ECAR		UN	CG&E	New GT 11	60	GT	NG	P	U	
96/04	ECAR		UN	CG&E	New GT 8	60	GT	NG	P	U	
96/04	ECAR		UN	CG&E	New GT 9	60	GT	NG	P	U	
96/05	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	370	ZZ	UNK	P	ZZ	
96/05	MAAC		UN	DPLC	Unidentified	100	UN	UNK	P	U	
96/05	MAAC		UN	PPCO	GCC Component	125	CT	FO2	L	U	
96/05	MAAC		UN	PSCO	Non-Utility Generation	45	UN	UNK	P	ZZ	
96/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[b]	ZZ	UNK	P	ZZ	
96/05	NPCC	NY	NY	ORRU	Non-Utility Generators	19[b]	ZZ	UNK	P	ZZ	
96/05	NPCC	ONT	ON	ONHY	LITTLE LONG EXTN. 1	51	HY	WAT	P	U	
96/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	74	UN	UNK	P	ZZ	
96/05	SERC	VAC	UN	SOCG	Undesignated 5	34	CW	WH	P	U	
96/05	SERC	VAC	UN	SOCG	Undesignated 5	75	CT	FO2	P	U	
96/05	SERC	VAC	UN	SOCG	Undesignated 6	34	CW	WH	P	U	
96/05	SERC	VAC	UN	SOCG	Undesignated 6	75	CT	FO2	P	U	
96/05	SERC	VAC	UN	UNK	NOW UTILITY GENERATOR	316	UN	UNK	P	ZZ	
96/05	SPP	WC	OK	OKGE	COGENERATOR - MCPC	100	CT	NG	P	CG	
96/05	SPP	WC	OK	OKGE	UNKNOWN 96	240	GT	NG	P	U	
96/05	WSCC	RMP	CO	PSC	PAWNEE 2	485	ST	BIT	T	U	
96/06	MAAC		MD	BCCO	BC CT 1	125	CT	FO2	P	U	
96/06	SPP	N	MO	EMDE	UNKNOWN 96	32	GT	NG	P	U	
96/06	SPP	N	MO	KACP	HAWTHORN 4	113	ST	NG	P	U	
96/06	SPP	N	MO	SPRM	UNDETERMINED	67	GT	NG	P	U	
96/06	WSCC	CNV	CA	LDWP	COSO 3	50	GE	ZZ	P	U	
96/06	WSCC	CNV	CA	LDWP	GENERIC 1996	100	ZZ	UNK	P	U	
96/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE 2	70	GT	FO2	P	U	
96/09	WSCC	NWP	WA	PSPL	TYE RIVER	10	HY	WAT	L	U	
96/10	WSCC		AB	TAUC	GAS TURBINE 3	81	GT	NG	P	U	
96/10	WSCC		AB	TAUC	NEW STEAM 2	360	ST	SUB	P	U	
96/11	NPCC	NY	NY	POAS	Niagara Falls	330	HY	WAT	L	U	
96/11	NPCC	ONT	ON	ONHY	LITTLE JACKFISH 1-2	129	HY	WAT	P	U	
96/11	SERC	FL	FL	FLPC	COMBINED CYCLE 2	390	CC	FO2	P	U	
96/12	ERCOT		TX	HL&P	MALAKOFF #1	645	ST	LIG	T	U	
96/12	MAAC		UN	GPUS	Combustion Turbines	400	GT	NG	P	U	
96/12	NPCC	QUE	QB	HYQB	Brisay 1-2	460	HY	WAT	T	U	
96/WI	MAIN	WUM	WI	MGE	SOLID WASTE	12	UN	REF	P	CG	
SUBTOTAL						10745					
97/01	ECAR		UN	EKPC	Unknown[c]	60	UN	UNK	P	U	
97/01	ERCOT		TX	TUEC	FOREST GROVE #1	750	ST	LIG	U	U	
97/01	MAAC		NJ	AECO	Qualifying Facility 4	100	CT	NG	P	ZZ	

---

[a] TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A of the SERC IE-411 report, the assumed startup date for this capacity under construction is January 1996.

[b] See Appendix D, page 1, footnote e.

[c] Best combination of combustion turbines, load management, dispersed generation and/or firm purchases.

APPENDIX D
GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
97/01	MAAC		NJ	AECO	Resource Recovery 3	15	ZZ	REF	P	U	
97/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	30[a]	ZZ	UNK	P	ZZ	
97/01	SERC	FL	FL	TAEC	UNKNOWN CT-5	75	CT	FO2	P	U	
97/01	WSCC	AZN	AZ	APS	GENERIC COGEN 2	2	CG	UNK	L	CG	
97/01	WSCC	AZN	AZ	APS	WADDELL 1	150	HY	WAT	P	U	
97/01	WSCC	CNV	CA	NCPA	UNIDENTIFIED PEAKING	25	ZZ	UNK	P	U	
97/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 97	25	HY	WAT	P	U	
97/03	SPP	N	MO	KACP	HAWTHORN 3	108	ST	NG	P	U	
97/03	WSCC		MX	CFE	ENSENADA 2	145	ST	FO6	P	U	
97/04	ECAR		UN	CG&E	New GT 12	60	GT	NG	P	U	
97/04	WSCC	RMP	CO	CCS	NIXON 2	350	ST	BIT	P	U	
97/04	WSCC	RMP	CO	PSC	COAL FBC NEW PLANT	75	ST	BIT	P	U	
97/04	WSCC	RMP	CO	PSC	RENEWABLE NO. 3	5	ST	ZZ	P	ZZ	
97/04	WSCC	RMP	CO	PSC	SOLID WASTE NO. 3	5	ST	REF	P	ZZ	
97/05	ERCOT		TX	AUST	W. COAL FLUIDIZED BED	200	ST	COL	P	U	
97/05	ERCOT		TX	CPSA	CALAVERAS #6	498	ST	LIG	P	U	
97/05	ERCOT		TX	LCRA	UNDESIGNATED	400	ST	SUB	P	U	
97/05	MAAC		UN	PSCO	Non-Utility Generation	10	UN	UNK	P	ZZ	
97/05	MAPP		UN	NSP	DAKOTAS 1	400	ST	COL	P	U	
97/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[b]	ZZ	UNK	P	ZZ	
97/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	23	UN	UNK	P	ZZ	
97/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	345	UN	UNK	P	ZZ	
97/05	SPP	WC	OK	OKGE	UNKNOWN 97	170	GT	NG	P	U	
97/06	MAAC		MD	BCCO	BC CT 2	125	CT	FO2	P	U	
97/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
97/06	SERC	SOU	AL	ALEC	LIGNITE 1	125	ST	LIG	P	U	
97/06	SPP	N	MO	EMDE	ENERGY CENTER 4	75	GT	NG	P	U	
97/06	WSCC	CNV	CA	LDWP	COSO 4	50	GE	ZZ	P	U	
97/06	WSCC	CNV	NV	NEVP	ALLEN 1	125	ST	BIT	P	U	
97/07	ECAR		UN	LG&E	Undesignated	75	GT	NG	P	U	
97/10	MAPP		SA	SPC	FUTURE FOSSIL 1 1	276	ST	LIG	P	U	
97/10	WSCC		AB	TAUC	NEW STEAM 3	360	ST	SUB	P	U	
97/11	MAPP		MB	MHEB	CONAWAPA 1	130	HY	WAT	T	U	
97/12	NPCC	QUE	QB	HYQB	Manic 3 A 1-2	500	HY	WAT	T	U	
97/12	WSCC	NWP	WA	BPA	WNP 1[c]	0[d]	NP	UR	V	U	
97/12	WSCC	NWP	WA	BPA	WNP 3[c]	0[d]	NP	UR	V	U	
SUBTOTAL						5957					
Under Review[e]	ECAR		OH	CE	PERRY #2	1182[d]	NB	UR	V	U	J
SUBTOTAL						1182					
TOTAL						91715 (90,533)[d]					

---

[a] See Appendix D, page 4, footnote c.

[b] See Appendix D, page 1, footnote e.

[c] Construction suspended on WNP1 and WNP3. Designated as a 2490 MW 'secured option'.

[d] WNP1, WNP3, and Perry 2 nuclear units were not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. The units are listed here for information only.

[e] Construction activity on Perry 2 has been suspended. Options with respect to the completion and timing of Perry 2 are being evaluated. A decision regarding the completion of the unit is not expected until all options have been evaluated.

North American
Electric
Reliability
Council

APPENDIX E
NUCLEAR GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S[a]	TYPE[b]	FUEL[b]	STATUS[b]	U/NU[b]	JOINT[c]
88/01	ECAR		MI	DECO	Fermi 2	1093	NB	UR	V	U	J
88/01	WSCC	AZN	AZ	APS	PALO VERDE 3	1270	NP	UR	V	U	J
88/03	NPCC	NY	NY	NIMP	Nine Mile Point 2	1080	NP	UR	V	U	J
88/06	MAIN	CE	IL	CECO	BRAIDWOOD 2	1090	NP	UR	V	U	
88/07	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #1	1250	NP	UR	V	U	J
SUBTOTAL						5783					
89/03	NPCC	ONT	ON	ONHY	DARLINGTON 2	881	CD	UR	V	U	
89/05	SERC	SOU	GA	GEPC	VOGTLE 2	1086	NP	UR	V	U	J
89/06	ERCOT		TX	HL&P	SOUTH TEXAS PROJECT #2	1250	NP	UR	V	U	J
89/07	ERCOT		TX	TUEC	COMANCHE PEAK #1	1150	NP	UR	V	U	J
89/07	NPCC	NY	NY	LOIL	Shoreham[d]	809	NB	UR	V	U	
89/08	NPCC	ONT	ON	ONHY	DARLINGTON 1	881	CD	UR	V	U	
89/11	NPCC	NE	NH	PSNH	SEABROOK 1[e]	1150	NP	UR	V	U	
SUBTOTAL						7207					
90/01	ERCOT		TX	TUEC	COMANCHE PEAK #2	1150	NP	UR	V	U	J
Under Review[f]	SERC	TVA	TN	TEVA	WATTS BAR 1	1170	NP	UR	V	U	
90/10	MAAC		PA	PECO	Limerick 2	1055	NB	UR	V	U	
SUBTOTAL						3375					
91/05	NPCC	ONT	ON	ONHY	DARLINGTON 3	881	CD	UR	U	U	
SUBTOTAL						881					
Under Review[f]	SERC	TVA	TN	TEVA	WATTS BAR2	1170	NP	UR	V	U	
92/02	NPCC	ONT	ON	ONHY	DARLINGTON 4	881	CD	UR	U	U	
SUBTOTAL						2051					
Under Review[f]	SERC	TVA	AL	TEVA	BELLEFONTE 1	1212	NP	UR	V	U	
SUBTOTAL						1212					
Under Review[f]	SERC	TVA	AL	TEVA	BELLEFONTE 2	1212	NP	UR	V	U	
SUBTOTAL						1212					
97/12	WSCC	NWP	WA	BPA	WNP 1[g]	0[h]	NP	UR	V	U	
97/12	WSCC	NWP	WA	BPA	WNP 3[g]	0[h]	NP	UR	V	U	
SUBTOTAL						0					
Under Review[i]	ECAR		OH	CE	PERRY #2	1182[h]	NB	UR	V	U	J
SUBTOTAL						1182					
TOTAL						22903 (21,721)[h]					

---

[a] Summer (S) rating of units in megawatts (MW).

[b] See explanation of codes on the next to last page of the report.

[c] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[d] An agreement has been negotiated between the Long Island Lighting Company and New York state to close the 100% complete 809 MW Shoreham nuclear unit.

[e] Public Service of New Hampshire (PSNH) is unable to predict when or whether the Seabrook plant will be permitted to commence operation. However, for planning and reporting purposes, New England Power Planning (NEPLAN) is assuming commercial operation by November 1, 1989.

[f] TVA's unit expansion schedule is under comprehensive analysis and completion dates are not determined at this time. For purposes of Item 3A only of the SERC IE-411 report, the assumed startup dates for capability under construction are: Watts Bar 1 (7/90), Watts Bar 2 (1/92), Bellefonte 1 (1/94), and Bellefonte 2 (1/96).

[g] Construction suspended on WNP 1 and WNP 3. Designated as a 2490 MW 'secured option'.

[h] WNP1, WNP3, and Perry 2 were not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. The units are listed here for information only.

[i] Construction on Perry 2 has been suspended. Options with respect to the completion and timing of Perry 2 are being evaluated. A decision regarding the completion of the unit is not expected until all options have been evaluated.

North American
Electric
Reliability
Council

APPENDIX F
COAL-FIRED GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME		MW-S[a]	TYPE[b]	FUEL[b]	STATUS[b]	U/NU[b]	JOINT[c]
88/05	ERCOT		TX	LCRA	F.P.P. #3		327	ST	SUB	V	U	
88/10	SERC	FL	FL	FLPL	ST. JOHNS RIVER	2	624	ST	BIT	V	U	J
SUBTOTAL							951					
89/02	SERC	SOU	GA	GEPC	SCHERER 4		801	ST	BIT	V	U	
89/05	MAPP		MN	NSP	CLAY BOSWELL	4	71.3	ST	SUB	V	U	
89/05	SERC	SOU	AL	ALAP	MILLER 3		666	ST	BIT	V	U	
89/06	WSCC	AZN	AZ	TEP	SPRINGERVILLE 2		360	ST	SUB	V	U	
89/10	WSCC		AB	EDMP	GENESEE 2		386	ST	SUB	V	U	
89/12	ECAR		IN	AEP	Rockport 2		1300	ST	COL	V	U	
SUBTOTAL							3584					
90/04	MAIN	WUM	WI	MPU	BOILER ADDITION		13	ST	BIT	P	U	
90/10	WSCC		AB	TAUC	SHEERNESS 2		366	ST	SUB	V	U	J
SUBTOTAL							379					
91/03	SPP	N	KS	KACP	LACYGNE 2		18	ST	SUB	P	U	
91/05	SERC	SOU	AL	ALAP	MILLER 4		666	ST	BIT	U	U	
91/06	ECAR		OH	CG&E	W.H. Zimmer 1[d]		1300	ST	COL	U	U	J
91/07	ECAR		KY	LG&E	Trimble County 1		495	ST	COL	U	U	
91/10	NPCC	NS	NS	NSPC	TRENTON #6		150	ST	BIT	L	U	
91/10	WSCC		AB	EDMP	GENESEE 1		386	ST	SUB	U	U	
SUBTOTAL							3015					
92/04	MAAC		MD	BCCO	Brandon Shores	2	640	ST	BIT	U	U	
92/05	ERCOT		TX	CPSA	CALAVERAS #5		498	ST	LIG	L	U	
92/07	MAPP		SA	SPC	SHAND	1	280	ST	LIG	L	U	
SUBTOTAL							1418					
93/06	SPP	N	KS	EMDE	RIVERTON 12		75	ST	COL	P	U	
93/10	NPCC	NS	NS	NSPC	NEW COAL A, #1		150	ST	BIT	P	U	
93/11	NPCC	NB	NB	NBPO	Pulverised Coal #1		400	ST	COL	P	U	
SUBTOTAL							625					
94/01	ERCOT		TX	TUEC	TWIN OAK #1		750	ST	LIG	U	U	
94/10	NPCC	NS	NS	NSPC	NEW COAL B, #1		300	ST	BIT	P	U	
94/12	MAIN	WUM	WI	MPU	MANITOWOC 8		60	ST	BIT	P	U	
SUBTOTAL							1110					
95/01	ERCOT		TX	TUEC	TWIN OAK #2		750	ST	LIG	U	U	
95/01	SERC	FL	FL	FLPL	IGCC	1	766	IG	BIT	P	U	
95/10	NPCC	NS	NS	NSPC	NEW COAL A, #2		150	ST	BIT	P	U	
95/10	WSCC		AB	TAUC	NEW STEAM 1		360	ST	SUB	P	U	
95/11	NPCC	NB	NB	NBPO	Pulverised Coal #2		200	ST	COL	P	U	
SUBTOTAL							2226					
96/01	ERCOT		TX	BEPC	SAN MIGUEL #2		400	ST	LIG	P	U	J
96/01	SERC	FL	FL	FLPL	IGCC	2	766	IG	BIT	P	U	
96/05	WSCC	RMP	CO	PSC	PAWNEE 2		485	ST	BIT	T	U	
96/10	WSCC		AB	TAUC	NEW STEAM 2		360	ST	SUB	P	U	
96/12	ERCOT		TX	HL&P	MALAKOFF #1		645	ST	LIG	T	U	
SUBTOTAL							2656					
97/01	ERCOT		TX	TUEC	FOREST GROVE #1		750	ST	LIG	U	U	
97/04	WSCC	RMP	CO	CCS	NIXON 2		350	ST	BIT	P	U	
97/04	WSCC	RMP	CO	PSC	COAL FBC NEW PLANT		75	ST	BIT	P	U	
97/05	ERCOT		TX	AUST	W. COAL FLUIDIZED BED		200	ST	COL	P	U	
97/05	ERCOT		TX	CPSA	CALAVERAS #6		498	ST	LIG	P	U	
97/05	ERCOT		TX	LCRA	UNDESIGNATED		400	ST	SUB	P	U	
97/05	MAPP		UN	NSP	DAKOTAS	1	400	ST	COL	P	U	
97/06	SERC	SOU	AL	ALEC	LIGNITE 1		125	ST	LIG	P	U	
97/06	WSCC	CNV	NV	NEVP	ALLEN 1		125	ST	BIT	P	U	
97/10	MAPP		SA	SPC	FUTURE FOSSIL 1	1	276	ST	LIG	P	U	
97/10	WSCC		AB	TAUC	NEW STEAM 3		360	ST	SUB	P	U	
SUBTOTAL							3559					
TOTAL							19523					

---

[a] Summer (S) rating of units in megawatts (MW).

[b] See explanation of codes on the next to last page of the report.

[c] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[d] The owner of this plant, which has been under construction as a nuclear unit, announced on January 21, 1984, that the plant will be converted from nuclear to coal-fired.

North American
Electric
Reliability
Council

APPENDIX G
HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S[a]	TYPE[b]	FUEL[b]	STATUS[b]	U/NU[b]	JOINT[c]
88/02	WSCC	AZN	NM	LAC	EL VADO DAM	8	HY	WAT	V	U	
88/02	WSCC	CNV	CA	CCSF	MOCCASIN	2	HY	WAT	V	U	
88/02	WSCC	CNV	CA	SNCL	BLACK BUTTE DAM	6	HY	WAT	V	U	
88/03	MAIN	WUM	WI	KAUK	COMBINED LOCKS	6	HY	WAT	P	U	
88/04	NPCC	NE	ME	BAHE	WEST ENFIELD	9	HY	WAT	V	U	
88/05	MAAC		PA	ALEC	Raystown 1	2.4	HY	WAT	V	U	
88/05	MAAC		PA	ALEC	Raystown 2	0	HY	WAT	V	U	
88/05	MAPP		MN	MP	BLANCHARD 3	6	HY	WAT	U	U	
88/05	NPCC	NE	VT	VTGP	HIGHGATE FALLS	3.1	HY	WAT	U	U	
88/05	WSCC	CNV	CA	SNCL	HIGH LINE CANAL	0	HY	WAT	U	U	
88/09	SPP	SE	AR	AREC	HS 13 UNIT #1	6	HY	WAT	V	U	
88/10	SPP	SE	AR	AREC	HS 13 UNIT #2	6	HY	WAT	V	U	
88/10	WSCC	AZN	NM	FARM	NAVAJO DAM	30	HY	WAT	V	U	
88/11	NPCC	NE	VT	VTGP	BELDEN	.6	HY	WAT	V	U	
88/11	NPCC	NE	VT	VTGP	HUNTINGTON FALLS	.6	HY	WAT	V	U	
88/11	SPP	SE	AR	AREC	HS 13 UNIT #3	5	HY	WAT	V	U	
SUBTOTAL						91					
89/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	5	HY	WAT	P	U	
89/05	NPCC	QUE	QB	HYQB	Manic 5 PA 1	245	HY	WAT	U	U	
89/05	SPP	WC	OK	OMPA	KAW HYDRO	25	HY	WAT	U	U	
89/05	WSCC	CNV	CA	TID	DON PEDRO UNIT 4	32	HY	WAT	L	U	J
89/07	NPCC	QUE	QB	HYQB	Manic 5 PA 2	245	HY	WAT	U	U	
89/07	WSCC	AZN	NM	LAC	ABIQUIU 1	7	HY	WAT	V	U	
89/07	WSCC	AZN	NM	LAC	ABIQUIU 2	7	HY	WAT	V	U	
89/07	WSCC	NWP	UT	UAMP	EAST CANYON 1 & 2	2	HY	WAT	T	U	
89/07	WSCC	NWP	UT	UAMP	LOST CREEK	1	HY	WAT	T	U	
89/09	NPCC	QUE	QB	HYQB	Manic 5 PA 3	245	HY	WAT	U	U	
89/11	NPCC	QUE	QB	HYQB	Manic 5 PA 4	245	HY	WAT	U	U	
SUBTOTAL						1059					
90/01	WSCC	CNV	CA	NCPA	HYDROELEC. PROJ NO. ONE	200	HY	WAT	V	U	J
90/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	20	HY	WAT	P	U	
90/01	WSCC	NWP	WA	TCL	WYNOCHEE 1	0	HY	WAT	T	U	
90/07	NPCC	NY	NY	POAS	Crescent	12	HY	WAT	P	U	
90/09	NPCC	NE	ME	CEMP	MONTY	25	HY	WAT	U	U	
90/11	MAPP		MB	MHEB	LIMESTONE 1	120	HY	WAT	U	U	
90/12	MAPP		MB	MHEB	LIMESTONE 2	120	HY	WAT	U	U	
90/12	WSCC	RMP	CO	USUC	MCPHEE POWER PLANT	1	HY	WAT	P	U	
SUBTOTAL						498					
91/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	17	HY	WAT	P	U	
91/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 91	2	HY	WAT	P	U	
91/02	MAPP		MB	MHEB	LIMESTONE 3	120	HY	WAT	U	U	
91/03	WSCC	RMP	WY	USMB	SHOSHONE	21	HY	WAT	U	U	
91/04	MAPP		MB	MHEB	LIMESTONE 4	120	HY	WAT	U	U	
91/06	NPCC	NE	VT	VTGP	FAIRFAX FALLS	2.8	HY	WAT	P	U	
91/06	NPCC	NY	NY	NIMP	South Glens Falls	14	HY	WAT	P	U	
91/06	SERC	SOU	AL	ALEC	DEMOPOLIS	50	HY	WAT	P	U	
91/07	MAPP		MB	MHEB	LIMESTONE 5	120	HY	WAT	U	U	
91/07	NPCC	NY	NY	NIMP	Hudson Falls	36	HY	WAT	P	U	
91/09	WSCC	CNV	CA	CDWR	DEVIL CANYON 3	80	HY	WAT	L	U	
91/10	MAPP		MB	MHEB	LIMESTONE 6	120	HY	WAT	U	U	
91/12	MAPP		MB	MHEB	LIMESTONE 7	120	HY	WAT	U	U	
91/12	WSCC	CNV	CA	CDWR	DEVIL CANYON 4	80	HY	WAT	P	U	
SUBTOTAL						903					

---

[a] Summer (S) rating of units in megawatts (MW).

[b] See explanation of codes on the next to last page of the report.

[c] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

North American
Electric
Reliability
Council

APPENDIX G
HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
92/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	109	HY	WAT	P	U	
92/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 92	2	HY	WAT	P	U	
92/04	NPCC	NE	VT	VTGP	C. RUTLAND	.3	HY	WAT	P	U	
92/05	MAPP		MB	MHEB	LIMESTONE 8	120	HY	WAT	U	U	
92/05	WSCC	NWP	WA	PSPL	WHITE RIVER FLUME	14	HY	WAT	L	U	
92/05	WSCC	RMP	CO	USUC	TOWAOC	11	HY	WAT	P	U	
92/06	WSCC	NWP	WA	TCL	BARRIER 1-2	0	HY	WAT	P	U	
92/07	WSCC	CNV	CA	LDWP	SMALL HYDRO DEV	6	HY	WAT	P	U	
92/08	MAPP		MB	MHEB	LIMESTONE 9	120	HY	WAT	U	U	
92/08	NPCC	QUE	QB	HYQB	LG 2 PA 1	316	HY	WAT	T	U	
92/09	WSCC	RMP	CO	USUC	RIDGEWAY POWER PLANT	4	HY	WAT	P	U	
92/10	NPCC	QUE	QB	HYQB	LG 2 PA 2	316	HY	WAT	T	U	
92/11	MAPP		MB	MHEB	LIMESTONE 10	120	HY	WAT	U	U	
92/11	NPCC	NE	ME	BAHE	MILFORD	1.2	HY	WAT	P	U	
92/11	NPCC	NE	ME	BAHE	VEAZIE	4.3	HY	WAT	P	U	
92/12	NPCC	QUE	QB	HYQB	LG 2 PA 3	316	HY	WAT	T	U	
92/12	WSCC	NWP	WA	PSPL	NOOKSACK FALLS	8	HY	WAT	L	U	
92/12	WSCC	NWP	WA	PSPL	THUNDER CREEK	9	HY	WAT	L	U	
SUBTOTAL						1477					
93/01	NPCC	NY	NY	NIMP	High Dam	2.5	HY	WAT	P	U	
93/01	NPCC	NY	NY	NIMP	Oswego Falls West	5.5	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 93	25	HY	WAT	P	U	
93/01	WSCC	CNV	CA	PG&E	UNID. PG&E HYDRO	37	HY	WAT	P	U	
93/03	WSCC	NWP	ID	USPN	MINIDOKA 1-5	20	HY	WAT	P	U	
93/06	MAIN	WUM	WI	WEP	HYDRO	3	HY	WAT	P	U	
93/06	WSCC	NWP	WA	TCL	HOWARD HANSON 1-3	0	HY	WAT	P	U	
93/08	NPCC	QUE	QB	HYQB	LG 2 PA 4	316	HY	WAT	T	U	
93/09	WSCC	NWP	WA	PSPL	NOISY CREEK	11	HY	WAT	L	U	
93/09	WSCC	NWP	WA	PSPL	SWIFT CREEK	9	HY	WAT	L	U	
93/09	WSCC	NWP	WA	TCL	ELKHORN 1-2	0	HY	WAT	P	U	
93/10	NPCC	QUE	QB	HYQB	LG 2 PA 5	316	HY	WAT	T	U	
93/10	WSCC	CNV	CA	CDWR	SAN LUIS OBISPO (1)	5	HY	WAT	P	U	
93/12	NPCC	QUE	QB	HYQB	LG 2 PA 6	316	HY	WAT	T	U	
SUBTOTAL						1066					
94/01	WSCC	CNV	CA	CDWR	MOJAVE SIPHON 1	7	HY	WAT	P	U	
94/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 94	25	HY	WAT	P	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #1	3	HY	WAT	T	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #2	3	HY	WAT	T	U	
94/03	SPP	SE	AR	AREC	HS 9 UNIT #3	4	HY	WAT	T	U	
94/04	WSCC	NWP	WA	SCL	SOUTH FORK TOLT	15	HY	WAT	L	U	
94/05	WSCC	CNV	CA	CDWR	MOJAVE SIPHON 2	7	HY	WAT	P	U	
94/10	NPCC	ONT	ON	ONHY	KIPLING EXTN. 1	66	HY	WAT	P	U	
SUBTOTAL						130					
95/01	WSCC	AZN	AZ	USLC	WADDELL (4)	0	HY	WAT	U	U	
95/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 95	25	HY	WAT	P	U	
95/01	WSCC	CNV	CA	PG&E	UNID. PG&E SMALL HYDRO 95	2	HY	WAT	P	U	
95/01	WSCC	CNV	CA	RDNG	LAKE REDDING	8	HY	WAT	L	U	
95/01	WSCC	NWP	ID	IPC	TWIN FALLS EXPANSION	6	HY	WAT	L	U	
95/03	WSCC	NWP	ID	TCL	A.J. WILEY 1-3	0	HY	WAT	P	U	
95/04	NPCC	ONT	ON	ONHY	SMOKEY FALLS EXTN. 1-2	207	HY	WAT	P	U	
95/10	MAPP		SA	SPC	FUTURE HYDRO I 1	92	HY	WAT	P	U	
95/11	NPCC	NE	ME	BAHE	BASIN MILLS	16.8	HY	WAT	P	U	
95/11	NPCC	ONT	ON	ONHY	HARMON EXTN. 1	74	HY	WAT	P	U	
95/12	NPCC	QUE	QB	HYQB	La Grande 1 1-12	1368	HY	WAT	T	U	
95/12	NPCC	QUE	QB	HYQB	Laforge 1 1-6	829	HY	WAT	T	U	
SUBTOTAL						2628					

North American
Electric
Reliability
Council

APPENDIX G
HYDRO (CONVENTIONAL) GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
96/01	WSCC	AZN	AZ	USLC	WADDELL (4)	45	HY	WAT	U	U	
96/01	WSCC	CNV	CA	RDNG	LAKE RED BLUFF	4	HY	WAT	L	U	
96/05	NPCC	ONT	ON	ONHY	LITTLE LONG EXTN. 1	51	HY	WAT	P	U	
96/09	WSCC	NWP	WA	PSPL	TYE RIVER	10	HY	WAT	L	U	
96/11	NPCC	NY	NY	POAS	Niagara Falls	330	HY	WAT	L	U	
96/11	NPCC	ONT	ON	ONHY	LITTLE JACKFISH 1-2	129	HY	WAT	P	U	
96/12	NPCC	QUE	QB	HYQB	Brisay 1-2	460	HY	WAT	T	U	
SUBTOTAL						1029					
97/01	WSCC	AZN	AZ	APS	WADDELL 1	150	HY	WAT	P	U	
97/01	WSCC	CNV	CA	PG&E	UNID. MAJOR HYDRO 97	25	HY	WAT	P	U	
97/11	MAPP		MB	MHEB	CONAWAPA 1	130	HY	WAT	T	U	
97/12	NPCC	QUE	QB	HYQB	Manic 3 A 1-2	500	HY	WAT	T	U	
SUBTOTAL						805					
TOTAL						9685					

North American
Electric
Reliability
Council

APPENDIX H
PUMPED STORAGE GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME		MW-S[a]	TYPE[b]	FUEL[b]	STATUS[b]	U/NU[b]	JOINT[c]
90/03	SERC	SOU	GA	SEPA	RUSSELL HYDRO #5		75	PS	WAT	V	U	
90/06	SERC	VAC	GA	SEPA	Russell Hydro	6	75	PS	WAT	U	U	
90/09	SERC	SOU	GA	SEPA	RUSSELL HYDRO #7		75	PS	WAT	V	U	
90/12	SERC	VAC	GA	SEPA	Russell Hydro	8	75	PS	WAT	U	U	
SUBTOTAL							300					
91/05	SERC	VAC	SC	DUPC	Bad Creek	1	250	PS	WAT	U	U	
91/05	SERC	VAC	SC	DUPC	Bad Creek	2	250	PS	WAT	U	U	
SUBTOTAL							500					
92/05	SERC	VAC	SC	DUPC	Bad Creek	3	250	PS	WAT	U	U	
92/05	SERC	VAC	SC	DUPC	Bad Creek	4	250	PS	WAT	U	U	
SUBTOTAL							500					
96/03	SERC	SOU	GA	GEPC	ROCKY MTN 1-3		848	PS	WAT	U	U	
SUBTOTAL							848					
TOTAL							2148					

---

[a] Summer (S) rating of units in megawatts (MW).
[b] See explanation of codes on the next to last page of the report.
[c] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

1 of 1

North American
Electric
Reliability
Council

APPENDIX I
OIL-FIRED GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S[a]	TYPE[b]	FUEL[b]	STATUS[b]	U/NU[b]	JOINT[c]
88/04	NPCC	NE	CT	NOEU	DEVON 10	17.2	JE	JF	V	U	
88/05	MAAC		MD	DPLC	Easton Unidentified CT	6.2	IC	F02	P	U	
88/05	MAAC		MD	DPLC	Easton Unidentified CT	6.3	IC	F02	P	U	
SUBTOTAL						30					
89/01	SERC	FL	FL	KEYW	UNKNOWN UN	9.8	IC	F02	P	U	
89/05	NPCC	NY	NY	LOIL	West Babylon GT	238	GT	F02	P	U	
89/05	SPP	N	MO	STJO	LAKE ROAD JET	15	JE	F02	P	U	
89/06	SERC	FL	FL	KEYW	UNKNOWN UN	9.8	IC	F02	P	U	
SUBTOTAL						273					
90/03	WSCC		MX	CFE	ROSARITO II #1	145	ST	F06	U	U	
90/05	MAAC		UN	PPCO	Combustion Turbine	70	GT	F02	P	U	
90/06	MAIN	WUM	WI	MARF	WILDWOOD 6-8	15	IC	F02	P	U	
90/09	WSCC		MX	CFE	ROSARITO II #2	145	ST	F06	T	U	
SUBTOTAL						375					
91/05	MAAC		UN	PPCO	Combustion Turbine	70	GT	F02	P	U	
SUBTOTAL						70					
92/05	MAAC		UN	PPCO	Combustion Turbine	70	GT	F02	P	U	
92/05	SERC	VAC	UN	SOCG	Undesignated 1	75	CT	F02	P	U	
92/05	SERC	VAC	UN	SOCG	Undesignated 2	75	CT	F02	P	U	
SUBTOTAL						220					
93/01	SERC	FL	FL	TAEC	UNKNOWN CT-1	75	GT	F02	P	U	
93/11	SERC	FL	FL	FLPC	COMBUSTION TURBINE 1-3	390	GT	F02	P	U	
SUBTOTAL						465					
94/01	SERC	FL	FL	TAEC	UNKNOWN CT-2	75	GT	F02	P	U	
94/03	WSCC		MX	CFE	ENSENADA 1	145	ST	F06	P	U	
94/05	MAAC		UN	PPCO	GCC Component	125	CT	F02	L	U	
94/05	SERC	VAC	UN	SOCG	Undesignated 3	75	CT	F02	P	U	
94/05	SERC	VAC	UN	SOCG	Undesignated 4	75	CT	F02	P	U	
94/11	SERC	FL	FL	FLPC	COMBINED CYCLE 1	192	CC	F02	P	U	
SUBTOTAL						687					
95/01	SERC	FL	FL	LALW	UNKNOWN 1	50	ST	F06	P	U	
95/01	SERC	FL	FL	TAEC	UNKNOWN CT-3	75	GT	F02	P	U	
95/05	MAAC		UN	PPCO	GCC Component	125	CT	F02	L	U	
95/05	SPP	N	MO	STJO	PEAK CAPACITY	65	GT	F02	P	U	
95/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE 1	70	GT	F02	P	U	
95/11	SERC	FL	FL	FLPC	COMBUSTION TURBINE 4-5	260	GT	F02	P	U	
SUBTOTAL						645					
96/01	MAPP		NE	OPPD	FUTURE GT 1	80	GT	F02	P	U	
96/01	SERC	FL	FL	TAEC	UNKNOWN CT-4	75	CT	F02	P	U	
96/05	MAAC		UN	PPCO	GCC Component	125	CT	F02	L	U	
96/05	SERC	VAC	UN	SOCG	Undesignated 5	75	CT	F02	P	U	
96/05	SERC	VAC	UN	SOCG	Undesignated 6	75	CT	F02	P	U	
96/06	MAAC		MD	BCCO	BC CT 1	125	CT	F02	P	U	
96/06	WSCC	CNV	NV	NEVP	COMBUSTION TURBINE 2	70	GT	F02	P	U	
96/11	SERC	FL	FL	FLPC	COMBINED CYCLE 2	390	CC	F02	P	U	
SUBTOTAL						1015					
97/01	SERC	FL	FL	TAEC	UNKNOWN CT-5	75	CT	F02	P	U	
97/03	WSCC		MX	CFE	ENSENADA 2	145	ST	F06	P	U	
97/06	MAAC		MD	BCCO	BC CT 2	125	CT	F02	P	U	
SUBTOTAL						345					
TOTAL						4125					

---

[a] Summer (S) rating of units in megawatts (MW).
[b] See explanation of codes on the next to last page of the report.
[c] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

North American
Electric
Reliability
Council

APPENDIX J
GAS-FIRED GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S[a]	TYPE[b]	FUEL[b]	STATUS[b]	U/NU[b]	JOINT[c]
88/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	195	GT	NG	V	U	
88/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	GT	NG	V	U	
88/02	WSCC	NWP	UT	UAMP	PAYSON 1-2	5	IC	NG	V	U	
88/06	ERCOT		TX	AUST	GAS TURBINE #1	50	GT	NG	V	U	
88/06	ERCOT		TX	AUST	GAS TURBINE #2	50	GT	NG	V	U	
88/06	ERCOT		TX	AUST	GAS TURBINE #3	50	GT	NG	V	U	
88/06	ERCOT		TX	AUST	GAS TURBINE #4	50	GT	NG	V	U	
88/09	SPP	N	KS	EMDE	RIVERTON 10	17	GT	NG	L	U	
88/09	SPP	N	KS	EMDE	RIVERTON 11	17	GT	NG	L	U	
88/12	SERC	FL	FL	FOPC	KING 9	22.5	CT	NG	V	U	
SUBTOTAL						847					
89/05	MAAC		DE	DPLC	Hay Road 2	102	GT	NG	L	U	
89/06	SPP	N	MO	SPRM	JRPS GT 1	67	GT	NG	P	U	
89/07	SERC	FL	FL	ORLA	INDIAN RIVER PK1	35	GT	NG	P	U	J
89/07	WSCC		BC	WKPL	GAS TURBINES 1-2	116	GT	NG	L	U	
89/08	MAAC		DE	DPLC	Hay Road 1	102	GT	NG	L	U	
89/09	SERC	FL	FL	ORLA	INDIAN RIVER PK2	35	GT	NG	P	U	J
89/11	SPP	SE	TX	LUPL	TECH 1	25	GT	NG	L	U	
SUBTOTAL						482					
90/01	ERCOT		TX	BEPC	UNDESIGNATED	70	GT	NG	P	U	
90/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	T	U	
90/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	260	GT	NG	T	U	
90/05	MAAC		NJ	AECO	AE Combustion Turbine	90	GT	NG	P	U	
90/06	SERC	VAC	VA	VIEP	Chesterfield 7	127	CT	NG	U	U	
90/10	MAPP		SA	SPC	FUTURE PEAKING 1	46	GT	NG	P	U	
90/10	MAPP		SA	SPC	FUTURE PEAKING 2	46	GT	NG	P	U	
SUBTOTAL						769					
91/01	ERCOT		TX	BEPC	UNDESIGNATED	70	GT	NG	P	U	
91/05	MAAC		UN	PPCO	SMECO CT	60	GT	NG	L	U	
91/06	SERC	SOU	AL	ALEC	CAES 1	110	ZZ	NG	P	U	
91/10	MAPP		SA	SPC	FUTURE PEAKING 3	46	GT	NG	P	U	
SUBTOTAL						286					
92/01	ERCOT		TX	BEPC	UNDESIGNATED	210	CC	NG	P	U	
92/01	SERC	FL	FL	HSTM	IVEY 22	10	IC	NG	P	U	
92/04	ECAR		UN	CG&E	New GT 1	60	GT	NG	P	U	
92/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
92/05	MAAC		UN	GPUS	Combustion Turbines	200	GT	NG	P	U	
92/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
92/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
92/06	SERC	VAC	VA	VIEP	Chesterfield 8	127	CT	NG	P	U	
SUBTOTAL						837					
93/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	130	GT	NG	P	U	
93/01	SERC	FL	FL	HSTM	G. W. IVEY 22	10	IC	NG	P	U	
93/01	SERC	FL	FL	SECI	UNKNOWN 1-2	440	CC	NG	P	U	
93/04	ECAR		UN	CG&E	New GT 2	60	GT	NG	P	U	
93/04	ECAR		UN	CG&E	New GT 3	60	GT	NG	P	U	
93/04	WSCC	RMP	CO	CCS	GEORGE BIRDSALL CT 1	54	GT	NG	P	U	
93/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
93/06	SERC	SOU	MS	SOMI	HATTIESBURG	70	CT	NG	P	U	
93/06	WSCC	CNV	NV	NEVP	COMBINED CYCLE 1	210	CW	RG	P	U	
SUBTOTAL						1109					

---

[a] Summer (S) rating of units in megawatts (MW).
[b] See explanation of codes on the next to last page of the report.
[c] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

North American
Electric
Reliability
Council

APPENDIX J
GAS-FIRED GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
94/01	ERCOT		TX	BEPC	UNDESIGNATED	210	CC	NG	P	U	
94/01	NPCC	NE	MA	COMW	COMBINED CYCLE	99.6	CC	NG	P	U	
94/01	SERC	FL	FL	FLPL	COMBINED CYCLES 1-2	770	CC	NG	P	U	
94/04	ECAR		UN	CG&E	New GT 4	60	GT	NG	P	U	
94/04	ECAR		UN	CG&E	New GT 5	60	GT	NG	P	U	
94/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
94/06	SERC	SOU	AL	ALEC	CAES 2	110	ZZ	NG	P	U	
94/06	WSCC	CNV	NV	NEVP	COMBINED CYCLE 2	210	CW	RG	P	U	
94/10	WSCC		AB	TAUC	GAS TURBINE 1	81	GT	NG	P	U	
94/10	WSCC		AB	TAUC	GAS TURBINE 2	81	GT	NG	P	U	
94/12	MAAC		UN	GPUS	Combustion Turbines	200	GT	NG	P	U	
94/12	MAPP		IA	ISU	BURLINGTON CT 1	50	GT	NG	P	U	
94/WI	MAIN	WUM	WI	MGE	COMBUSTION TURBINE	50	UN	NG	P	U	
SUBTOTAL						2062					
95/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 1	120	CT	NG	P	U	
95/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 1	80	CA	NG	P	U	
95/04	ECAR		UN	CG&E	New GT 6	60	GT	NG	P	U	
95/04	ECAR		UN	CG&E	New GT 7	60	GT	NG	P	U	
95/04	ECAR		UN	IP&L	Undesignated	80	GT	NG	P	U	
95/04	WSCC	RMP	CO	CCS	GEORGE BIRDSALL CT 2	54	GT	NG	P	U	
95/05	MAPP		UN	NSP	FUTURE GT 1	150	GT	NG	P	U	
95/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
95/06	SPP	N	MO	EMDE	ENERGY CENTER 3	75	CA	NG	P	U	
95/12	MAAC		UN	GPUS	Combined Cycle	100	CW	NG	P	U	
95/12	MAAC		UN	GPUS	Combustion Turbines	200	GT	NG	P	U	
SUBTOTAL						1054					
96/01	ERCOT		TX	BEPC	UNDESIGNATED 2 UNITS	140	GT	NG	P	U	
96/01	ERCOT		TX	TUEC	COMBUSTION TURBINES	390	GT	NG	P	U	
96/01	WSCC	AZN	TX	EPE	GENERIC STATION	75	GT	NG	P	U	
96/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 2	120	CT	NG	P	U	
96/01	WSCC	CNV	CA	SDGE	COMBINED CYCLE 2	80	CA	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 1	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 2	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 3	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 4	105	GT	NG	P	U	
96/03	SPP	N	MO	KACP	COMB. TURBINE 5	105	GT	NG	P	U	
96/04	ECAR		UN	CG&E	New GT 10	60	GT	NG	P	U	
96/04	ECAR		UN	CG&E	New GT 11	60	GT	NG	P	U	
96/04	ECAR		UN	CG&E	New GT 8	60	GT	NG	P	U	
96/04	ECAR		UN	CG&E	New GT 9	60	GT	NG	P	U	
96/05	SPP	WC	OK	OKGE	UNKNOWN 96	240	GT	NG	P	U	
96/06	SPP	N	MO	EMDE	UNKNOWN 96	32	GT	NG	P	U	
96/06	SPP	N	MO	KACP	HAWTHORN 4	113	ST	NG	P	U	
96/06	SPP	N	MO	SPRM	UNDETERMINED	67	GT	NG	P	U	
96/10	WSCC		AB	TAUC	GAS TURBINE 3	81	GT	NG	P	U	
96/12	MAAC		UN	GPUS	Combustion Turbines	400	GT	NG	P	U	
SUBTOTAL						2503					
97/03	SPP	N	MO	KACP	HAWTHORN 3	108	ST	NG	P	U	
97/04	ECAR		UN	CG&E	New GT 12	60	GT	NG	P	U	
97/05	SPP	WC	OK	OKGE	UNKNOWN 97	170	GT	NG	P	U	
97/06	MAIN	WUM	WI	WEP	COMBUSTION TURBINE	75	GT	NG	P	U	
97/06	SPP	N	MO	EMDE	ENERGY CENTER 4	75	GT	NG	P	U	
97/07	ECAR		UN	LG&E	Undesignated	75	GT	NG	P	U	
SUBTOTAL						563					
TOTAL						10511					

J

North American
Electric
Reliability
Council

APPENDIX K
OTHER[a] GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME		MW-S[b]	TYPE[c]	FUEL[c]	STATUS[c]	U/NU[c]	JOINT[d]
88/05	WSCC	CNV	CA	CCPA	COLDWATER CRK UNIT 1		61	GE	GST	V	U	J
88/10	WSCC	CNV	CA	CCPA	COLDWATER CRK UNIT 2		61	GE	GST	V	U	J
88/12	SERC	FL	FL	FOPC	KING	5	7.5	CW	WH	V	U	
SUBTOTAL							130					
89/01	WSCC	CNV	CA	PG&E	PVUSA 1		1	SO	SUN	P	U	
89/01	WSCC	NWP	WA	TCL	STEAM PLANT NO. 2		43	CG	REF	U	U	
89/06	SPP	SE	TX	LUPL	WASTE RECOVERY 1		10	ST	REF	T	U	
SUBTOTAL							54					
90/01	WSCC	CNV	CA	PG&E	PVUSA 2		1	SO	SUN	P	U	
90/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING		150	ZZ	UNK	P	U	
90/04	WSCC	CNV	CA	LDWP	COSO 1		10	GE	ZZ	P	U	
90/06	SERC	VAC	VA	VIEP	Chesterfield	7	58	ST	WH	U	U	
90/07	WSCC	CNV	CA	GLEN	SCHOLL CANYON 2		12	IC	REF	U	U	
90/07	WSCC	CNV	CA	SCE	BATTERY STORAGE		10	ZZ	UNK	U	U	
90/10	ERCOT		TX	AUST	REFUSE #1		20	ST	REF	U	U	
SUBTOTAL							261					
91/01	WSCC	AZN	AZ	APS	SOLAR 1		2	SO	SUN	U	U	
91/01	WSCC	CNV	CA	PG&E	PVUSA 3		1	SO	SUN	P	U	
91/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING		50	ZZ	UNK	P	U	
91/05	MAAC		MD	DPLC	Easton Unidentified CT		15	IC	UNK	P	U	
91/11	WSCC	CNV	CA	PG&E	GEYSERS 21		140	GE	GST	T	U	
SUBTOTAL							208					
92/01	MAAC		NJ	AECO	Resource Recovery 1		12	ZZ	REF	P	U	
92/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING		50	ZZ	UNK	P	U	
92/02	WSCC		MX	CFE	CERRO PRIETO IV UNIT 1		50	GE	GST	L	U	
92/05	ERCOT		TX	CPSA	MSW-LCP		36	ST	REF	P	U	
92/05	MAAC		UN	DPLC	Unidentified		100	UN	UNK	P	U	
92/05	SERC	VAC	UN	SOCG	Undesignated	1	34	CW	WH	P	U	
92/05	SERC	VAC	UN	SOCG	Undesignated	2	34	CW	WH	P	U	
92/06	SERC	VAC	VA	VIEP	Chesterfield	8	58	ST	WH	P	U	
92/06	WSCC	CNV	CA	LDWP	GENERIC 1992		100	ZZ	UNK	P	U	
SUBTOTAL							474					
93/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING		50	ZZ	UNK	P	U	
93/02	WSCC		MX	CFE	CERRO PRIETO IV UNIT 2		50	GE	GST	T	U	
93/03	SPP	N	MO	KACP	WASTE-TO-ENERGY		30	ST	REF	P	U	
93/05	MAAC		UN	PPCO	Muni. Solid Waste		40	ST	REF	P	U	
93/06	WSCC	CNV	CA	LDWP	GENERIC 1993		100	ZZ	UNK	P	U	
SUBTOTAL							270					
94/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING		50	ZZ	UNK	P	U	
94/05	SERC	VAC	UN	SOCG	Undesignated	3	34	CW	WH	P	U	
94/05	SERC	VAC	UN	SOCG	Undesignated	4	34	CW	WH	P	U	
94/06	WSCC	CNV	CA	LDWP	GENERIC 1994		100	ZZ	UNK	P	U	
94/11	WSCC	CNV	CA	PG&E	GEYSERS 22		140	GE	GST	P	U	
SUBTOTAL							358					
95/01	ECAR		UN	EKPC	Unknown		60[e]	UN	UNK	P	U	
95/01	MAAC		NJ	AECO	Resource Recovery 2		11	ZZ	REF	P	U	
95/01	WSCC	AZN	AZ	APS	SOLAR 2		8	SO	SUN	P	U	
95/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING		50	ZZ	UNK	P	U	
95/05	MAAC		MD	DPLC	Easton Unidentified CT		20	UN	UNK	P	U	
95/06	WSCC	CNV	CA	LDWP	COSO 2		50	GE	ZZ	P	U	
95/06	WSCC	CNV	CA	LDWP	GENERIC 1995		100	ZZ	UNK	P	U	
SUBTOTAL							299					

---

[a] Includes utility-owned capacity other than nuclear, coal-, oil-, and gas-fired, conventional hydro, and pumped storage units.

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on the next to last page of the report.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] Best combination of combustion turbines, load management, dispersed generation and/or firm purchases.

North American
Electric
Reliability
Council

APPENDIX K
OTHER[a] GENERATING UNIT ADDITIONS (UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
96/01	ECAR		UN	EKPC	Unknown	60[b]	UN	UNK	P	U	
96/01	WSCC	AZN	AZ	APS	REFUSE 1	10	ZZ	REF	L	U	
96/01	WSCC	CNV	CA	SMUD	UNIDENTIFIED PEAKING	100	ZZ	UNK	P	U	
96/05	MAAC		UN	DPLC	Unidentified	100	UN	UNK	P	U	
96/05	SERC	VAC	UN	SOCG	Undesignated 5	34	CW	WH	P	U	
96/05	SERC	VAC	UN	SOCG	Undesignated 6	34	CW	WH	P	U	
96/06	WSCC	CNV	CA	LDWP	COSO 3	50	GE	ZZ	P	U	
96/06	WSCC	CNV	CA	LDWP	GENERIC 1996	100	ZZ	UNK	P	U	
SUBTOTAL						488					
97/01	ECAR		UN	EKPC	Unknown	60	UN	UNK	P	U	
97/01	MAAC		NJ	AECO	Resource Recovery 3	15	ZZ	REF	P	U	
97/01	WSCC	CNV	CA	NCPA	UNIDENTIFIED PEAKING	25	ZZ	UNK	P	U	
97/06	WSCC	CNV	CA	LDWP	COSO 4	50	GE	ZZ	P	U	
SUBTOTAL						150					
TOTAL						2692					

---

[a] Includes utility-owned capacity other than nuclear, coal-, oil-, and gas-fired, conventional hydro, and pumped storage units.

[b] See Appendix K, page 1, footnote e.

North American
Electric
Reliability
Council

APPENDIX L
NON-UTILITY GENERATOR(NUG) ADDITIONS[a]
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S[b]	TYPE[c]	FUEL[c]	STATUS[c]	U/NU[c]	JOINT[d]
88/01	MAAC		NJ	PSCO	American Hydro Power Co.	2	HY	WAT	V	ZZ	
88/01	MAAC		NJ	PSCO	Great Falls Hydroelectric	11	HY	WAT	V	ZZ	
88/01	MAAC		NJ	PSCO	Kinsley's Landfill Co.	3	IC	NG	V	ZZ	
88/01	MAAC		NJ	PSCO	Trenton District Energy Co.	12	IC	GAS	V	ZZ	
88/01	MAAC		PA	GPUS	Indiana Univ. of PA - NUG	20	IC	NG	P	ZZ	
88/01	MAAC		PA	GPUS	Ontelaunee Dam - NUG	1	HY	WAT	P	ZZ	
88/01	MAAC		PA	GPUS	Westwood - NUG	30[e]	ST	ZZ	P	ZZ	
88/01	MAAC		PA	GPUS	York Hospital - NUG	3	IC	GAS	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	QF COGENERATION 88	575	CG	UNK	P	CG	
88/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 88	3	GE	GST	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	QF HYDRO 88	7	HY	WAT	P	ZZ	
88/01	WSCC	CNV	CA	PG&E	QF WIND 88	4	WM	WND	P	ZZ	
88/01	WSCC	CNV	CA	SDGE	QF HYDRO (1)	2	HY	WAT	P	ZZ	
88/02	MAAC		NJ	PSCO	Starmark Energy System Inc.	3	ZZ	GAS	P	ZZ	
88/02	MAPP		MN	NSP	BYLLESBY-NSP 1	2.5	HY	WAT	V	ZZ	
88/02	NPCC	NE	ME	BAHE	PERC ORINGTON (RERATE)	10	ST	WD	V	CG	
88/02	NPCC	NE	ME	CEMP	ANDROSCOG RESVR AZISCOHAS	5.5	HY	WAT	V	ZZ	
88/02	NPCC	NE	ME	CEMP	FAIRFIELD ENERGY (RERATE)	11.4	ST	WD	V	CG	
88/02	NPCC	NE	NH	UNTL	PERC	4	ST	WD	V	CG	
88/03	WSCC	CNV	CA	WAMP	WARM SPRINGS DAM	1	HY	WAT	V	ZZ	
88/04	NPCC	NE	ME	CEMP	LEWISTON ST&PR PH II inc	3.4	ST	REF	T	CG	
88/04	NPCC	NE	NH	PSNH	MINNEYAWA	.4	HY	WAT	V	ZZ	
88/04	NPCC	NE	VT	VTGP	SWANTON HYDRO	.6	HY	WAT	T	ZZ	
88/04	WSCC	CNV	CA	WAMP	WEBER GT	9	CG	NG	P	CG	
88/04	WSCC	NWP	ID	SCL	LUCKY PEAK	100	HY	WAT	V	ZZ	
88/04	WSCC	RMP	CO	PSC	GEORGETOWN LAKE HYDRO (1)	0	HY	WAT	T	ZZ	
88/05	MAAC		NJ	GPUS	Hamms Landfill - NUG	1	IC	GAS	P	ZZ	
88/05	MAPP		MN	NSP	ST CLOUD-NSP 1	8.2	HY	WAT	V	ZZ	
88/05	MAPP		NE	LES	ARCHER DANIELS-LES 1	6	ST	BIT	V	ZZ	
88/05	NPCC	NE	CT	UNIC	CRRA	55	ST	REF	V	CG	
88/05	NPCC	NE	NH	PSNH	TAMWORTH PROJECT(UPRATE)	16.9	ST	WD	V	CG	
88/05	NPCC	NY	NY	LOIL	Non-Utility Generators	20[f]	ZZ	UNK	P	ZZ	
88/05	NPCC	NY	NY	NEYE	Non-Utility Generators	10[f]	ZZ	UNK	T	ZZ	
88/05	NPCC	NY	NY	NEYE	Non-Utility Generators	12[f]	ZZ	UNK	P	ZZ	
88/05	NPCC	NY	NY	NIMP	Non-Utility Generators	17[f]	ZZ	UNK	T	ZZ	
88/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	258	UN	UNK	P	ZZ	
88/05	SERC	SOU	UN	UNK	NON UTILITY GENERATOR	1	UN	UNK	P	ZZ	
88/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	306	UN	UNK	P	ZZ	
88/06	NPCC	NE	CT	NOEU	BRISTOL REFUSE	13.2	ST	REF	V	CG	
88/06	NPCC	NE	CT	NOEU	HARTFORD HOSPITAL	10.2	CC	NG	V	CG	
88/06	NPCC	NE	CT	NOEU	SO MEADOW 5 (RERATE)	32.3	ST	REF	V	CG	
88/06	NPCC	NE	ME	CEMP	MILLSTAR NEW (LOCKWOOD HY)	1.8	HY	WAT	U	ZZ	
88/06	NPCC	NE	NH	PSNH	WHTFLD PWR&LT(115&34.5kV)	13.8	ST	WD	U	CG	
88/06	NPCC	NE	VT	VTGP	MISSISQUOI	10	HY	WAT	V	ZZ	
88/06	WSCC	NWP	NV	SPP	GEOTHERMAL	35	GE	GST	P	ZZ	
88/07	ECAR		PA	APS	ALLEGHENY LK & D #5	3	HY	WAT	P	ZZ	
88/07	ECAR		WV	APS	HANNIBAL LOCK & DAM	20	HY	WAT	P	ZZ	
88/07	MAAC		PA	GPUS	Caterpillar Tractor - NUG	45	GT	NG	P	ZZ	
88/07	NPCC	NE	MA	NOEU	SPRINGFIELD	7.5	ST	REF	U	CG	
88/07	NPCC	NE	ME	CEMP	CPCOG GTR PORT RS RCVRY	8.9	ST	REF	U	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	2	IC	UNK	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	84	IC	UNK	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	383	CG	UNK	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	392	CG	UNK	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	5	CG	UNK	P	CG	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	1	GE	GST	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	88	GE	GST	P	ZZ	

[a] Non-utility generating capacity includes the capacity of only those non-utility units which sell or are projected to sell electric energy or capacity, or both, to electric utilities and which are expected to be available to the electric utility system at the time of system peak demand.

[b] Summer (S) rating of units in megawatts (MW).

[c] See explanation of codes on the next to last page of the report.

[d] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.

[e] Facilities qualifying under PURPA regulations which may be waste burning (trash, waste coal), small hydro, third party financed or self-generation, cogeneration (in excess of internal load served), wind, solar etc. or fluidized bed combustion facility using anthracite coal (culm) for fuel.

[f] Small power producers at various locations, providing power burning various types of fuel.

North American
Electric
Reliability
Council

APPENDIX L
NON-UTILITY GENERATOR(NUG) ADDITIONS
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
88/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	3	HY	WAT	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	54	SO	SUN	P	ZZ	
88/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	5	WM	WND	P	ZZ	
88/07	WSCC	NWP	WA	PSPL	SKAGIT CO. WASTE	2	CG	REF	U	CG	
88/07	WSCC	RMP	CO	PSC	COGEN AT UNC	65	CG	NG	U	CG	
88/07	WSCC	RMP	CO	PSC	HIGHLAND CANAL HYDRO (1)	2	HY	WAT	T	ZZ	
88/08	ECAR		PA	APS	ALLEGHENY LK & D #6	4	HY	WAT	P	ZZ	
88/08	NPCC	NE	CT	NOEU	CAPITOL DISTRICT	45	CC	NG	U	CG	
88/08	WSCC	RMP	CO	PSC	PLATORO PROJECT (1)	0	HY	WAT	U	ZZ	
88/09	MAAC		NJ	GPUS	Bayonne - NUG	125	ST	NG	P	ZZ	
88/09	MAAC		PA	GPUS	Glatfelter 2 - NUG	26[a]	ST	ZZ	P	ZZ	
88/09	NPCC	NY	NY	POAS	Non-Utility Generators	2.5[b]	ZZ	UNK	P	ZZ	
88/09	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	25	CG	UNK	P	CG	
88/09	WSCC	RMP	CO	PSC	WHITEWATER HYDRO (1)	0	HY	WAT	T	ZZ	
88/10	NPCC	NE	ME	CEMP	CHAMPION COGEN	27.3	ST	REF	U	CG	
88/10	WSCC	NWP	OR	PPL	JIM BOYD HYDRO	1	HY	WAT	P	ZZ	
88/11	MAAC		NJ	GPUS	L&D Landfill - NUG	4	IC	REF	P	ZZ	
88/11	MAPP		NE	OPPD	KELLOGG CO-OPPD 1	.6	CW	WH	V	ZZ	
88/11	NPCC	NE	MA	COMW	SEMASS	47.7	ST	REF	V	CG	
88/11	NPCC	NE	ME	CEMP	MILLER HYD WORUSBO-NEW	13.1	HY	WAT	U	ZZ	
88/11	NPCC	NE	VT	VTGP	COMTU FALLS-2	.2	HY	WAT	U	ZZ	
88/11	NPCC	NY	NY	CEHG	Non-Utility Generators	6[b]	ZZ	UNK	P	ZZ	
88/11	WSCC	NWP	WA	PPL	CITY OF WALLA WALLA	1	HY	WAT	P	ZZ	
88/12	MAAC		NJ	GPUS	Dupont - NUG	92	GT	NG	P	ZZ	
88/12	MAAC		NJ	GPUS	Marcal Paper - NUG	45	GT	NG	P	ZZ	
88/12	MAAC		NJ	GPUS	Riegel Paper - NUG	33	GT	NG	P	ZZ	
88/12	MAAC		NJ	GPUS	Schering Plough - NUG	23	GT	NG	P	ZZ	
88/12	MAAC		NJ	GPUS	Warren Co. RR - NUG	11	IC	REF	P	ZZ	
88/12	MAAC		PA	GPUS	7 Springs Dam - NUG	10	HY	WAT	P	ZZ	
88/12	MAAC		PA	GPUS	Monroe Co. RR - NUG	6	IC	REF	P	ZZ	
88/12	NPCC	NE	ME	CEMP	SCOTT WINSLOW-COGEN	16.1	ST	WD	T	CG	
88/12	NPCC	NE	VT	VTGP	UNION VILLAGE	.2	HY	WAT	T	ZZ	
88/12	WSCC	NWP	ID	IPC	COGEN NO. 4	20	CG	UNK	P	CG	
88/UN	NPCC	NE	MA	COMW	CPC LOWELL	25	ST	NG	U	CG	
SUBTOTAL						3431					
89/01	ECAR		UN	APS	PURPA 1	1	ST	GAS	P	ZZ	
89/01	ECAR		UN	CP	TOTAL OF 2 FACILITIES	34	UN	WOD	P	ZZ	
89/01	ECAR		UN	DECO	ONE FACILITY	10	UN	UNK	P	ZZ	
89/01	MAAC		UN	GPUS	Non-Utility Generation	15	UN	UNK	P	ZZ	
89/01	NPCC	NE	CT	NOEU	DERBY DAM	6.2	HY	WAT	U	ZZ	
89/01	WSCC	CNV	CA	LDWP	HYPERION ENERGY SYS	43	CG	ZZ	P	CG	
89/01	WSCC	CNV	CA	PG&E	QF COGENERATION 89	976	CG	UNK	P	CG	
39/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 89	48	GE	GST	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF HYDRO 89	40	HY	WAT	P	ZZ	
89/01	WSCC	CNV	CA	PG&E	QF WIND 89	43	WM	WND	P	ZZ	
89/01	WSCC	CNV	CA	RDNG	CAMAGE	20	CG	WD	P	CG	
89/01	WSCC	CNV	CA	SDGE	QF BIOGAS (1)	2	IC	ZZ	P	ZZ	
89/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
89/01	WSCC	NWP	OR	PPL	FRED EHLERS (1)	1	HY	WAT	P	ZZ	
89/01	WSCC	NWP	OR	PPL	PINE PRODUCTS	4	CG	WD	P	CG	
89/02	NPCC	NE	ME	CEMP	LEWISTON ST&PR PH III inc	1.2	ST	REF	T	CG	
89/02	NPCC	NE	NH	PSNH	NEAF/SWANZEY PROJECT	15.7	ST	WD	U	CG	
89/03	WSCC	NWP	ID	WWPC	CLEARWATER POWER 1-2	1	HY	WAT	L	ZZ	
89/04	NPCC	NE	VT	VTGP	DODGE FALLS	2.5	HY	WAT	T	ZZ	
89/04	NPCC	NE	VT	VTGP	NO SPRINGFIELD	18	ST	WD	T	CG	
89/04	NPCC	NE	VT	VTGP	RYE GATE	18	ST	WD	T	CG	
89/05	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	20	CG	UNK	P	CG	
89/05	MAAC		UN	GPUS	Non-Utility Generation	14	UN	UNK	P	ZZ	
89/05	MAAC		UN	PSCO	Non-Utility Generation	46	UN	UNK	P	ZZ	
89/05	NPCC	NY	NY	LOIL	Non-Utility Generators	20[b]	ZZ	UNK	P	ZZ	

---

[a] See Appendix L, page 1, footnote e.
[b] See Appendix L, page 1, footnote f.

North American
Electric
Reliability
Council

APPENDIX L
NON-UTILITY GENERATOR(NUG) ADDITIONS
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
89/05	NPCC	NY	NY	NEYE	Non-Utility Generators	52[a]	ZZ	UNK	P	ZZ	
89/05	NPCC	NY	NY	NIMP	Non-Utility Generators	250[a]	ZZ	UNK	T	ZZ	
89/05	NPCC	NY	NY	ORRU	Non-Utility Generators	4[a]	ZZ	UNK	P	ZZ	
89/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	97	UN	UNK	P	ZZ	
89/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	278	UN	UNK	P	ZZ	
89/05	SPP	WC	OK	OKGE	COGENERATOR - SCI	100	CT	NG	P	CG	
89/06	MAAC		MD	BCCO	Bresco	55	ST	REF	P	CG	
89/06	WSCC	NWP	NV	SPP	GEOTHERMAL	50	GE	GST	P	ZZ	
89/06	WSCC	NWP	WA	GCPD	P.E.C. HEADWORKS	7	HY	WAT	U	ZZ	
89/06	WSCC	NWP	WA	WWPC	PANTHER CREEK (1)	1	HY	WAT	L	ZZ	
89/06	WSCC	RMP	CO	PSC	VALLECITO HYDRO	5	HY	WAT	T	ZZ	
89/07	WSCC	CNV	CA	LDWP	NON-UTILITY COGEN	35	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	29	IC	UNK	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	149	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	266	CG	NG	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	5	CG	UNK	P	CG	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	110	GE	GST	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY HYDRO	10	HY	WAT	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	22	SO	SUN	P	ZZ	
89/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	13	WM	WND	P	ZZ	
89/07	WSCC	NWP	OR	PPL	CENTRAL OR POWER PROJ.	4	HY	WAT	P	ZZ	
89/09	NPCC	NE	NH	PSNH	CONCORD REG WASTE ENRGY PR.	10	ST	REF	U	CG	
89/09	WSCC	RMP	CO	PSC	PUEBLO CHEMICAL	65	CG	NG	T	CG	
89/11	NPCC	NE	CT	NOEU	AES THAMES	180	ST	COL	U	CG	
89/11	NPCC	NE	ME	CEMP	UNITED AMERICAN HYDRO	5.4	HY	WAT	U	ZZ	
89/11	NPCC	NE	VT	VTGP	BIO-ENERGY	15	ST	WD	T	CG	
89/11	NPCC	NE	VT	VTGP	E. GEORGIA CO-GEN	29	ST	NG	V	CG	
89/11	NPCC	NE	VT	VTGP	WINOOSKI-1	3	HY	WAT	T	ZZ	
89/11	NPCC	NE	VT	VTGP	WINOOSKI-2	1.2	HY	WAT	U	ZZ	
89/12	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-365	CG	UNK	P	CG	
89/12	MAAC		UN	GPUS	Non-Utility Generation	328	UN	UNK	P	ZZ	
89/12	NPCC	NE	NH	PSNH	DERRY WASTE BURNER	10.3	ST	REF	T	CG	
89/12	NPCC	NE	VT	VTGP	BALL MTN. DAM	2	HY	WAT	T	ZZ	
89/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	22[b]	ZZ	NG	V	ZZ	
89/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	28[b]	ZZ	UNK	U	ZZ	
89/12	WSCC	NWP	ID	IPC	COGEN NO. 5	11	CG	UNK	P	CG	
89/12	WSCC	NWP	WA	PSPL	KOMA KULSHAN	12	HY	WAT	P	ZZ	
89/UN	NPCC	NE	MA	BECO	PEAT PROD OF AMERICA	22.8	ST	ZZ	U	CG	
89/UN	NPCC	NE	NH	PSNH	W. STEWARTSTOWN PROJECT	13.8	ST	WD	T	CG	
SUBTOTAL						3336					
90/01	ECAR		PA	APS	MILESBURG	43	ST	COL	P	ZZ	
90/01	ECAR		UN	CP	ONE FACILITY	20	UN	REF	P	ZZ	
90/01	ECAR		UN	DECO	ONE FACILITY	65	UN	REF	P	ZZ	
90/01	MAPP		MN	NSP	WINONA-NSP 1	1.8	ST	ZZ	P	ZZ	
90/01	NPCC	NE	CT	NOEU	PERKIN ELMER	9.4	CC	NG	T	CG	
90/01	NPCC	NE	MA	COMW	NEA	25	CC	NG	T	CG	J
90/01	NPCC	NE	MA	COMW	PEPPERELL POWER	38	CC	NG	T	CG	
90/01	NPCC	NE	ME	CEMP	CARRABASSETT PWR ARS GRP	36.8	ST	WD	T	CG	
90/01	NPCC	NE	NH	PSNH	REMEDIAL RESOURCE RECOVERY	4	ST	REF	T	CG	
90/01	WSCC	CNV	CA	PG&E	QF COGENERATION 90	259	CG	UNK	P	CG	
90/01	WSCC	CNV	CA	PG&E	QF GEOTHERMAL 90	40	GE	GST	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF HYDRO 90	133	HY	WAT	P	ZZ	
90/01	WSCC	CNV	CA	PG&E	QF WIND 90	9	WM	WND	P	ZZ	
90/01	WSCC	CNV	CA	SCE	COOLWATER IGCC	100	ST	ZZ	V	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF BIOMASS (1)	12	ST	REF	P	ZZ	
90/01	WSCC	CNV	CA	SDGE	QF COGENERATION (1)	40	CG	ZZ	P	CG	
90/01	WSCC	CNV	CA	SDGE	QF COGENERATION (3)	108	CG	NG	P	CG	
90/01	WSCC	NWP	OR	PPL	LITTLE GREYBACK	0	HY	WAT	P	ZZ	
90/01	WSCC	RMP	CO	PSC	HORSE MOUNTAIN POWER GEN	50	CG	BIT	T	CG	

---

[a] See Appendix L, page 1, footnote f.

[b] Includes industrial non-utility generation, power from municipal waste, and small hydro developments.

North American
Electric
Reliability
Council

APPENDIX L
NON-UTILITY GENERATOR(NUG) ADDITIONS
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
90/02	ECAR		WV	APS	SUTTON	3	HY	WAT	P	ZZ	
90/03	ECAR		MI	CP	MCV	800	CC	NG	P	ZZ	
90/03	MAAC		UN	GPUS	Non-Utility Generation	46	UN	UNK	P	ZZ	
90/04	NPCC	NE	VT	VTGP	MOORETOWN-8	.6	HY	WAT	U	ZZ	
90/05	ECAR		UN	APS	PURPA 2	3	HY	WAT	P	ZZ	
90/05	ERCOT		TX	AUST	VALLEY VIEW-NUG	49	ZZ	UNK	V	ZZ	
90/05	MAAC		NJ	AECO	Qualifying Facility 1	140	CT	NG	P	ZZ	
90/05	MAAC		UN	GPUS	Non-Utility Generation	11	UN	UNK	P	ZZ	
90/05	MAAC		UN	PSCO	Non-Utility Generation	113	UN	UNK	P	ZZ	
90/05	MAPP		MN	NSP	HENNEPIN CO-NSP 1	38	ST	ZZ	P	ZZ	
90/05	NPCC	NY	NY	LOIL	Non-Utility Generators	120[a]	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	NEYE	Non-Utility Generators	67[a]	ZZ	UNK	L	ZZ	
90/05	NPCC	NY	NY	NIMP	Non-Utility Generators	307[a]	ZZ	UNK	T	ZZ	
90/05	NPCC	NY	NY	NIMP	Non-Utility Generators	40[a]	ZZ	UNK	P	ZZ	
90/05	NPCC	NY	NY	NIMP	Non-Utility Generators	405[a]	ZZ	UNK	L	ZZ	
90/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	295	UN	UNK	P	ZZ	
90/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	696	UN	UNK	P	ZZ	
90/07	ECAR		UN	APS	PURPA 3	80	ST	COL	P	ZZ	
90/07	ERCOT		TX	HL&P	AES DEEPWATER-NUG	136	ST	PC	P	CG	
90/07	NPCC	NE	MA	COMW	LEE MILLS COGEN	47	CC	NG	T	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	86	IC	UNK	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	7	CG	NG	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	7	CG	UNK	P	CG	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	147	GE	GST	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	14	SO	SUN	P	ZZ	
90/07	WSCC	CNV	CA	SCE	NON-UTILITY WIND	6	WM	WND	P	ZZ	
90/08	NPCC	NE	VT	VTGP	KTZ ENERGY	4.6	ST	REF	T	CG	
90/08	WSCC	RMP	CO	PSC	STAGECOACH (1)	1	HY	WAT	T	ZZ	
90/09	NPCC	NE	ME	CEMP	ANDRO 1,2,&3	1.7	HY	WAT	U	ZZ	
90/09	WSCC	RMP	CO	PSC	MONFORT COGEN	120	CG	NG	T	CG	
90/11	NPCC	NE	VT	VTGP	NON TROY	.4	HY	WAT	U	ZZ	
90/12	ECAR		MI	CP	MCV	440	CC	NG	P	ZZ	
90/12	ERCOT		TX	AUST	VALLEY VIEW-NUG	49	ZZ	UNK	P	ZZ	
90/12	MAAC		UN	GPUS	Non-Utility Generation	110[b]	UN	UNK	P	ZZ	
90/12	NPCC	NE	MA	OSPC	OCEAN STATE POWER 1	225	CC	NG	L	ZZ	J
90/12	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	75[c]	ZZ	UNK	T	ZZ	
90/12	WSCC	NWP	ID	IPC	COGEN NO. 6	7	CG	UNK	P	CG	
90/UN	NPCC	NE	CT	NOEU	SCRRRA PRESTON	13.9	ST	REF	T	CG	
90/UN	NPCC	NE	CT	NOEU	UNIROYAL	24	ST	WD	T	CG	
SUBTOTAL						5729					
91/01	ECAR		UN	APS	PURPA 4	10	HY	WAT	P	ZZ	
91/01	ECAR		UN	DECO	ONE FACILITY	6	UN	UNK	P	ZZ	
91/01	NPCC	NE	CT	NOEU	BIOGEN	13	ST	WD	T	CG	
91/01	NPCC	NE	CT	NOEU	EXETER	24.5	ST	ZZ	T	CG	
91/01	NPCC	NE	ME	CEMP	BOISE CASCADE	29	ST	WD	U	CG	
91/01	WSCC	CNV	CA	PG&E	QF COGENERATION 91	14	CG	UNK	P	CG	
91/01	WSCC	CNV	CA	PG&E	QF HYDRO 91	3	HY	WAT	P	ZZ	
91/01	WSCC	CNV	CA	SDGE	QF COGENERATION	1	CG	NG	P	CG	
91/01	WSCC	NWP	OR	PPL	TUMULO IRRIG. DIST.	1	HY	WAT	P	ZZ	
91/01	WSCC	RMP	CO	PSC	AMERICAN ATLAS NO. 3	80	CG	NG	T	CG	
91/03	NPCC	NE	MA	OSPC	OCEAN STATE POWER 2	225	CC	NG	L	ZZ	J
91/03	WSCC	RMP	CO	PSC	SOUTH CANYON GEO	10	GE	GST	T	ZZ	
91/04	WSCC	RMP	CO	PSC	SOLID WASTE NO. 1	5	ST	REF	P	ZZ	
91/05	MAAC		UN	PSCO	Non-Utility Generation	410	UN	UNK	P	ZZ	
91/05	NPCC	NY	NY	LOIL	Non-Utility Generators	90[a]	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	NEYE	Non-Utility Generators	59[a]	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	NIMP	Non-Utility Generators	104[a]	ZZ	UNK	P	ZZ	
91/05	NPCC	NY	NY	NIMP	Non-Utility Generators	16[a]	ZZ	UNK	T	ZZ	
91/05	NPCC	NY	NY	NIMP	Non-Utility Generators	237[a]	ZZ	UNK	L	ZZ	

[a] See Appendix L, page 1, footnote f.

[b] Facilities qualifying under PURPA regulations which may be waste burning (trash, waste coal), small hydro, third party financed or self-generation, cogeneration (in excess of internal load served), wind, solar, etc.

[c] See Appendix L, page 3, footnote b.

North American
Electric
Reliability
Council

APPENDIX L
NON-UTILITY GENERATOR(NUG) ADDITIONS
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
91/05	NPCC	NY	NY	ORRU	Non-Utility Generators	16[a]	ZZ	UNK	P	ZZ	
91/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	53	UN	UNK	P	ZZ	
91/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	573	UN	UNK	P	ZZ	
91/05	SPP	WC	OK	OKGE	COGENERATOR - AES	300	ST	BIT	P	CG	
91/06	WSCC	RMP	CO	PSC	SUNLAWN EASTSIDE	25	CG	BIT	T	CG	
91/07	ECAR		WV	APS	GRANT TOWN	80	ST	COL	P	ZZ	
91/07	NPCC	NY	NY	POAS	Non-Utility Generators	4[a]	ZZ	UNK	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	17	IC	UNK	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY COGEN	78	CG	UNK	P	CG	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	4	GE	GST	P	ZZ	
91/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	7	SO	SUN	P	ZZ	
91/08	MAAC		UN	GPUS	Non-Utility Generation	80[b]	UN	UNK	P	ZZ	
91/10	ECAR		PA	APS	BURGETTSTOWN	80	ST	COL	P	ZZ	
91/10	ECAR		UN	APS	PURPA 5	50	ST	COL	P	ZZ	
91/12	MAAC		UN	GPUS	Non-Utility Generation	335[b]	UN	UNK	P	ZZ	
91/12	WSCC	NWP	ID	IPC	COGEN NO. 7	6	CG	UNK	P	CG	
SUBTOTAL						3046					
92/01	ECAR		PA	APS	PT. MARION	2	HY	WAT	P	ZZ	
92/01	ECAR		UN	DECO	ONE FACILITY	2	HY	WAT	P	ZZ	
92/01	ECAR		UN	DECO	TOTAL OF 2 FACILITIES	5	UN	UNK	P	ZZ	
92/01	NPCC	NE	CT	NOEU	ARS	32.2	ST	WD	T	CG	
92/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[c]	ZZ	UNK	P	ZZ	
92/01	WSCC	CNV	CA	PG&E	QF WIND 92	4	WM	WND	P	ZZ	
92/01	WSCC	NWP	WA	PSPL	TWIN FALLS	20	HY	WAT	P	ZZ	
92/05	ERCOT		TX	TUEC	UNSPECIFIED RESOURCES-NUG	100	CG	UNK	P	CG	
92/05	MAAC		NJ	AECO	Qualifying Facility 2	180	CT	NG	P	ZZ	
92/05	MAAC		UN	PSCO	Non-Utility Generation	35	UN	UNK	P	ZZ	
92/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[a]	ZZ	UNK	P	ZZ	
92/05	NPCC	NY	NY	NEYE	Non-Utility Generators	10[a]	ZZ	UNK	P	ZZ	
92/05	NPCC	NY	NY	NIMP	Non-Utility Generators	5[a]	ZZ	UNK	L	ZZ	
92/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	123	UN	UNK	P	ZZ	
92/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	182	UN	UNK	P	ZZ	
92/07	NPCC	NY	NY	POAS	Non-Utility Generators	3[a]	ZZ	UNK	P	ZZ	
92/07	WSCC	CNV	CA	SCE	NON-UTILITY SOLAR	3	SO	SUN	P	ZZ	
92/09	ECAR		PA	APS	SHANNOPIN	80	ST	COL	P	ZZ	
92/12	MAAC		UN	GPUS	Non-Utility Generation	86[b]	UN	UNK	P	ZZ	
92/12	WSCC	NWP	ID	IPC	COGEN NO. 8	6	CG	UNK	P	CG	
SUBTOTAL						913					
93/01	ECAR		UN	DECO	UNDESIGNATED NUMBER	50	UN	UNK	P	ZZ	
93/01	MAAC		NJ	AECO	Qualifying Facility 3	160	CT	NG	P	ZZ	
93/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	20[c]	ZZ	UNK	P	ZZ	
93/01	WSCC	NWP	OR	IPC	SMALL HYDRO	6	HY	WAT	P	ZZ	
93/04	WSCC	RMP	CO	PSC	RENEWABLE NO. 1	10	ST	ZZ	P	ZZ	
93/04	WSCC	RMP	CO	PSC	SOLID WASTE NO. 2	5	ST	REF	P	ZZ	
93/05	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	400	ZZ	UNK	P	ZZ	
93/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[a]	ZZ	UNK	P	ZZ	
93/05	NPCC	NY	NY	NIMP	Non-Utility Generators	200[a]	ZZ	UNK	L	ZZ	
93/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	269	UN	UNK	P	ZZ	
93/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	340	UN	UNK	P	ZZ	
93/07	MAPP		ND	MDU	SGI INTERNATL-MDU 1	25	ST	LIG	P	ZZ	
93/07	WSCC	CNV	CA	SCE	NON-UTILITY BIOMASS	11	IC	UNK	P	ZZ	
93/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	17	GE	GST	P	ZZ	
93/12	ERCOT		TX	HL&P	OCCIDENTAL-NUG	-225[d]	CT	NG	P	ZZ	
SUBTOTAL						1303					
94/01	ECAR		UN	DECO	ONE FACILITY	1	HY	WAT	P	ZZ	
94/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	30[c]	ZZ	UNK	P	ZZ	
94/05	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	100	ZZ	UNK	P	ZZ	

---

[a] See Appendix L, page 1, footnote f.
[b] See Appendix L, page 4, footnote b.
[c] See Appendix L, page 3, footnote b.

North American
Electric
Reliability
Council

APPENDIX L
NON-UTILITY GENERATOR(NUG) ADDITIONS
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
94/05	MAAC		UN	PSCO	Non-Utility Generation	40	UN	UNK	P	ZZ	
94/05	NPCC	NY	NY	COEN	Non-Utility Generators	218[a]	ZZ	UNK	P	ZZ	
94/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[a]	ZZ	UNK	P	ZZ	
94/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	22	UN	UNK	P	ZZ	
94/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	305	UN	UNK	P	ZZ	
94/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	16	GE	GST	P	ZZ	
94/12	ERCOT		TX	HL&P	DOW CHEMICAL-NUG	-325[b]	GT	NG	P	ZZ	
SUBTOTAL						422					
95/01	ECAR		UN	DECO	TOTAL OF 2 FACILITIES	6	UN	REF	P	ZZ	
95/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	30[c]	ZZ	UNK	P	ZZ	
95/03	ERCOT		TX	HL&P	BAYOU COGENERATION - NUG	-270[b]	GT	NG	P	ZZ	
95/04	WSCC	RMP	CO	PSC	RENEWABLE NO. 2	5	ST	ZZ	P	ZZ	
95/05	NPCC	NY	NY	CEHG	Non-Utility Generators	11[a]	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[a]	ZZ	UNK	P	ZZ	
95/05	NPCC	NY	NY	ORRU	Non-Utility Generators	44[a]	ZZ	UNK	P	ZZ	
95/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	44	UN	UNK	P	ZZ	
95/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	349	UN	UNK	P	ZZ	
95/07	WSCC	CNV	CA	SCE	NON-UTILITY GEOTHERMAL	25	GE	GST	P	ZZ	
95/10	ECAR		UN	APS	PURPA 6	130	ST	COG	P	ZZ	
95/10	ECAR		UN	APS	PURPA 7	180	ST	COL	P	ZZ	
95/10	ECAR		UN	APS	PURPA CONTINGENCY	-80[d]	UN	UNK	P	ZZ	
95/12	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	-70	ZZ	UNK	P	ZZ	
SUBTOTAL						419					
96/01	ECAR		UN	DECO	TOTAL OF 2 FACILITIES	11	UN	REF	P	ZZ	
96/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	30[c]	ZZ	UNK	P	ZZ	
96/01	WSCC	AZN	AZ	APS	GENERIC COGEN 1	2	CG	UNK	L	CG	
96/05	ERCOT		TX	TUEC	NON-UTILITY GENERATOR	370	ZZ	UNK	P	ZZ	
96/05	MAAC		UN	PSCO	Non-Utility Generation	45	UN	UNK	P	ZZ	
96/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[a]	ZZ	UNK	P	ZZ	
96/05	NPCC	NY	NY	ORRU	Non-Utility Generators	19[a]	ZZ	UNK	P	ZZ	
96/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	74	UN	UNK	P	ZZ	
96/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	316	UN	UNK	P	ZZ	
96/05	SPP	WC	OK	OKGE	COGENERATOR - MCPC	100	CT	NG	P	CG	
96/WI	MAIN	WUM	WI	MGE	SOLID WASTE	12	UN	REF	P	CG	
SUBTOTAL						994					
97/01	MAAC		NJ	AECO	Qualifying Facility 4	100	CT	NG	P	ZZ	
97/01	NPCC	ONT	ON	ONHY	NON-UTILITY GEN.	30[c]	ZZ	UNK	P	ZZ	
97/01	WSCC	AZN	AZ	APS	GENERIC COGEN 2	2	CG	UNK	L	CG	
97/04	WSCC	RMP	CO	PSC	RENEWABLE NO. 3	5	ST	ZZ	P	ZZ	
97/04	WSCC	RMP	CO	PSC	SOLID WASTE NO. 3	5	ST	REF	P	ZZ	
97/05	MAAC		UN	PSCO	Non-Utility Generation	10	UN	UNK	P	ZZ	
97/05	NPCC	NY	NY	LOIL	Non-Utility Generators	15[a]	ZZ	UNK	P	ZZ	
97/05	SERC	FL	UN	UNK	NON UTILITY GENERATOR	23	UN	UNK	P	ZZ	
97/05	SERC	VAC	UN	UNK	NON UTILITY GENERATOR	345	UN	UNK	P	ZZ	
SUBTOTAL						535					
TOTAL						20128					

---

[a] See Appendix L, page 1, footnote f.
[b] Contract expires.
[c] See Appendix L, page 3, footnote b.
[d] PURPA contingincy to recognize that not all of the PURPA capacity will finally be developed.

North American
Electric
Reliability
Council

APPENDIX M
JOINTLY-OWNED GENERATING UNIT ADDITIONS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

IN-SVC DATE	REGION	NAME	MW-S[a]	TYPE[b]	FUEL[b]	COMMENTS[c]
88/01	ECAR	Fermi 2	1093	NB	UR	DECO(962MW),WPSC(131); AS OF 1/90,DECO(1093MW)
88/01	WSCC	PALO VERDE 3	1270	NP	UR	APS(370MW),SRP(222),SCE(211),OTHERS(467)
88/03	NPCC	Nine Mile Point 2	1080	NP	UR	NIMP(443MW),NEYE(195),LOIL(194),ROGE(151),CEHG(97)
88/05	WSCC	COLDWATER CRK UNIT 1	61	GE	GST	SMUD(30.5MW),MID(24.4),SNCL(6.1);OPERATOR:CCPA
88/07	ERCOT	SOUTH TEXAS PROJECT #1	1250	NP	UR	HL&P(385MW),CP&L(315),CPSA(350),AUST(200)
88/10	SERC	ST. JOHNS RIVER 2	624	ST	BIT	FLPL(312MW),JACO(312)
88/10	WSCC	COLDWATER CRK UNIT 2	61	GE	GST	SMUD(30.5MW),MID(24.4),SNCL(6.1);OPERATOR:CCPA
SUBTOTAL			5439			
89/05	SERC	VOGTLE 2	1086	NP	UR	JOINTLY OWNED BY GEPC, OPC, MEAG, AND DALTON
89/05	WSCC	DON PEDRO UNIT 4	32	HY	WAT	TID(21.9MW),MID(10.1); OPERATOR: TID
89/06	ERCOT	SOUTH TEXAS PROJECT #2	1250	NP	UR	HL&P(385MW),CP&L(315),CPSA(350),AUST(200)
89/07	ERCOT	COMANCHE PEAK #1	1150	NP	UR	TUEC(1035MW), OTHER(115) UNDER LITIGATION
89/07	SERC	INDIAN RIVER PK1	35	GT	NG	ORLA(21MW),FMPA(14)
89/09	SERC	INDIAN RIVER PK2	35	GT	NG	ORLA(21MW),FMPA(14)
SUBTOTAL			3588			
90/01	ERCOT	COMANCHE PEAK #2	1150	NP	UR	TUEC(1035MW), OTHER(115) UNDER LITIGATION
90/01	NPCC	NEA	25	CC	NG	COMW(25MW), 275MW UNCONTRACTED AT THIS TIME
90/01	WSCC	HYDROELEC. PROJ NO. ONE	200	HY	WAT	JOINT PLANT. OPERATOR: NCPA
90/10	WSCC	SHEERNESS 2	366	ST	SUB	TAUC(183MW),APL(183)
90/12	NPCC	OCEAN STATE POWER 1	225	CC	NG	BECO(106MW),NEES(58),EUAS(47),NEWP(14)
SUBTOTAL			1966			
91/03	NPCC	OCEAN STATE POWER 2	225	CC	NG	BECO(106MW),NEES(58),EUAS(47),NEWP(14)
91/06	ECAR	W.H. Zimmer 1	1300[d]	ST	COL	CG&E(605MW), DP&L(365), AEP(330)
SUBTOTAL			1525			
96/01	ERCOT	SAN MIGUEL #2	400	ST	LIG	BEPC(200MW), AND SOUTH TEXAS ELECTRIC COOP(200)
SUBTOTAL			400			
Under Review[e]	ECAR	PERRY #2	1182[f]	NB	UR	CE(605MW),OE(416),DLCO(161)
SUBTOTAL			1182			
TOTAL			14100	(12,918)[f]		

---

[a] Summer (S) rating of units in megawatts (MW).

[b] See explanation of codes on the next to last page of the report.

[c] Distribution of the jointly-owned units among utilities in megawatts (MW).

[d] The owners of this plant, which has been under construction as a nuclear unit announced on January 21, 1984, that the plant will be converted from nuclear to coal-fired.

[e] Construction on Perry 2 has been suspended. Options with respect to the completion and timing of Perry 2 are being evaluated. A decision regarding the completion of the unit is not expected until all options have been evaluated.

[f] Perry 2 was not counted as part of the owning utilities' or NERC's capacity during the ten-year forecast period. The unit is listed here for information only.

North American
Electric
Reliability
Council

APPENDIX N
GENERATING UNIT RETIREMENTS (UTILITY AND NON-UTILITY OWNED)
(January 1, 1988 - December 31, 1997)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S[a]	TYPE[b]	FUEL[b]	STATUS[b]	U/NU[b]	JOINT[c]
88/01	MAPP		MN	CP	BENSON 1-5	6.52	IC	FO2	R	U	
88/01	MAPP		MN	CP	JACKSON 1-4	4.92	IC	FO2	R	U	
88/01	SERC	SOU	AL	ALAP	BARRY A - B	45	CT	OIL	R	U	
88/01	WSCC	CNV	CA	PG&E	OLEUM 1	41	CG	FO6	R	U	
88/01	WSCC	CNV	CA	PG&E	OLEUM 2	46	CG	FO6	R	U	
88/03	MAIN	EM	MO	UE	CANTON DIESELS (1 OF 6 UNITS)	1	IC	FO2	R	U	
88/03	MAIN	EM	MO	UE	CHARLESTON DIESELS (2 UNITS)	2	IC	FO2	R	U	
88/03	MAIN	EM	MO	UE	LAGRANGE DIESEL	1	IC	FO2	R	U	
88/03	MAIN	EM	MO	UE	MOBERLY DIESELS (2 UNITS)	2	IC	FO2	R	U	
88/03	MAIN	EM	MO	UE	MONTGOMERY DIESEL	1	IC	FO2	R	U	
88/04	MAIN	WUM	WI	WEP	COMMERCE	31	ST	NG	R	U	
88/05	MAAC		PA	PECO	Richmond D	2.7	IC	FO2	R	U	
88/05	MAAC		PA	PECO	Richmond 81	48	GT	FO2	R	U	
88/05	MAPP		IA	IPS	MAYNARD 7	49	ST	SUB	R	U	
88/09	SPP	N	KS	EMDE	RIVERTON 3,4	20	ST	NG	R	U	
88/11	MAIN	WUM	WI	MARQ	PLANT 4 DIESEL 1 THRU 5	14	IC	FO2	R	U	
88/11	MAPP		MN	SMMP	ROCHESTER SILVER LK 2	13.6	ST	BIT	R	U	
88/11	NPCC	NE	MA	NOEU	SILVER LAKE 12	14	GT	FO2	R	U	
88/UN	NPCC	NB	NB	NBPO	Chatham #1	9.4	ST	FO6	R	U	
SUBTOTAL						352					
89/04	ECAR		OH	BMLW	Bryan #2	3	IC	FO2	R	U	
89/10	WSCC		AB	EDMP	ROSSDALE 6-7	44	GT	NG	R	U	
89/11	NPCC	NE	CT	NOEU	TORRINGTON TERMINAL	17.2	JE	JF	R	U	
89/11	NPCC	NE	CT	NOEU	TUNNEL JET 10	17.2	JE	JF	R	U	
89/11	NPCC	NE	MA	NOEU	WOODLAND ROAD 10	16.6	JE	JF	R	U	
89/11	NPCC	NE	NH	PSNH	CONWAY DSLS 1-3	3[d]	IC	FO2	R	U	
89/11	NPCC	NE	NH	PSNH	SCHILLER 3	26.3[d]	ST	FO6	R	U	
SUBTOTAL						127					
90/01	ECAR		MI	CP	Cobb 1	52	ST	COL	R	U	
90/01	ECAR		MI	CP	Cobb 2	52	ST	COL	R	U	
90/01	ECAR		MI	CP	Cobb 3	52	ST	COL	R	U	
90/01	MAIN	WUM	WI	WEP	OAK CREEK 3	112	ST	BIT	R	U	
90/01	MAIN	WUM	WI	WEP	OAK CREEK 4	119	ST	BIT	R	U	
90/01	SERC	FL	FL	HSTM	G. W. IVEY 8	2.5	IC	NG	R	U	
90/01	SERC	SOU	AL	ALAP	GORGAS 5	61	ST	BIT	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 1	48	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 2	48	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 3	14	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 4	14	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 5	14	GT	FO2	R	U	
90/10	ECAR		OH	CG&E	Miami Fort GT 6	15	GT	FO2	R	U	
90/10	WSCC		AB	APL	FORT MCMURRAY	14	GT	NG	R	U	
90/10	WSCC		AB	APL	STURGEON 1-2	13	GT	NG	R	U	
90/10	WSCC		AB	CMH	MEDICINE HAT 4	3	ST	NG	R	U	
90/10	WSCC		AB	CMH	MEDICINE HAT 6	5	ST	NG	R	U	
90/10	WSCC		AB	EDMP	ROSSDALE 2-4	70	ST	NG	R	U	
90/11	SERC	FL	FL	JACO	SOUTHSIDE 1	0	ST	UNK	R	U	
90/12	ECAR		IN	NIPS	Michigan City 2	60	ST	COL	R	U	
90/12	MAAC		PA	GPUS	Front Street 4	28	ST	BIT	R	U	
90/12	MAAC		PA	GPUS	Front Street 1-3, 5	90	ST	BIT	R	U	
90/12	MAAC		PA	GPUS	Williamsburg 5	32	ST	BIT	R	U	
90/12	MAAC		PA	PECO	Cromby 2	201	ST	FO6	R	U	
90/12	MAAC		PA	PECO	Delaware 7	126	ST	FO6	R	U	
90/12	MAAC		PA	PECO	Delaware 8	124	ST	FO6	R	U	
90/12	MAAC		PA	PECO	Delaware D	2.7	IC	FO2	R	U	
90/12	SPP	SE	AR	MSUI	LAKE CATHERINE 1	45	ST	NG	R	U	
90/12	SPP	SE	AR	MSUI	LAKE CATHERINE 2	44	ST	NG	R	U	
SUBTOTAL						1461					

[a] Summer (S) rating of units in megawatts (MW).
[b] See explanation of codes on the next to last page of the report.
[c] Units identified by utilities as jointly-owned are designated with a "J". Only the majority owner is listed here. See Appendix M for additional information on jointly-owned units.
[d] Scheduled for retirement concurrent with Seabrook 1 assumed in service date.

North American
Electric
Reliability
Council

APPENDIX N
GENERATING UNIT RETIREMENTS (UTILITY AND NON-UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
91/01	SERC	FL	FL	HSTM	G. W. IVEY 9-10	5	IC	NG	R	U	
91/01	SERC	FL	FL	JACO	SOUTHSIDE 2	0	ST	UNK	R	U	
91/04	WSCC	RMP	CO	PSC	FT ST˜VRAIN 1	230	NH	TH	R	U	
91/05	MAAC		MD	DPLC	Easton 3	.5	IC	FO2	R	U	
91/05	MAAC		MD	DPLC	Easton 4	.6	IC	FO2	R	U	
91/05	MAAC		MD	DPLC	Easton 5	.8	IC	FO2	R	U	
91/05	MAAC		MD	DPLC	Easton 6	1.2	IC	FO2	R	U	
91/05	NPCC	NE	MA	NOEU	DOREEN 10	16.6	JE	JF	R	U	
91/05	NPCC	NE	MA	NOEU	FRANKLIN DRIVE 10	17.2	JE	JF	R	U	
91/06	MAIN	WUM	WI	WEP	OAK CREEK 1	95	ST	BIT	R	U	
91/06	MAIN	WUM	WI	WEP	OAK CREEK 2	95	ST	BIT	R	U	
91/11	ECAR		IN	NIPS	Michigan City 3	60	ST	COL	R	U	
91/12	SPP	SE	LA	MSUI	NINEMILE 1	70	ST	NG	R	U	
91/12	SPP	SE	MS	MSUI	REX BROWN 3	69	ST	NG	R	U	
SUBTOTAL						661					
92/01	ECAR		OH	CG&E	Miami Fort 5	80	ST	COL	R	U	
92/03	SPP	SE	LA	CAJN	OPELOUSAS 1 & 2	34	ST	GAS	R	U	
92/05	MAPP		NE	NPPD	SCOTTSBLUFF 2	5.5	ST	NG	R	U	
92/07	MAPP		SA	SPC	ESTEVAN 2	14	ST	LIG	R	U	
92/07	MAPP		SA	SPC	ESTEVAN 3	19	ST	LIG	R	U	
92/07	MAPP		SA	SPC	ESTEVAN 4	28	ST	LIG	R	U	
92/10	WSCC		BC	BCHA	BOSTON BAR DIESEL	2	IC	FO2	R	U	
92/10	WSCC		BC	BCHA	LYTTON DIESEL	3	IC	FO2	R	U	
92/11	MAPP		MN	SMMP	FAIRMONT 5	12.2	ST	BIT	R	U	
92/11	NPCC	NE	CT	NOEU	DEVON 3	68[a]	ST	FO6	R	U	
92/11	NPCC	NE	CT	NOEU	DEVON 4	50[a]	ST	FO6	R	U	
92/12	SPP	SE	AR	MSUI	HARVEY COUCH 1	25	ST	NG	R	U	
SUBTOTAL						341					
93/01	SERC	FL	FL	GAMW	J. R. KELLY 6	15	ST	NG	R	U	
93/01	SERC	FL	FL	GAMW	J. R. KELLY 1-2	28	GT	NG	R	U	
93/03	WSCC	NWP	ID	USPN	MINIDOKA 1-6	10	HY	WAT	R	U	
93/05	MAAC		PA	PECO	Schuylkill 1	166	ST	FO6	R	U	
93/05	MAAC		PA	PECO	Schuylkill D	2.7	IC	FO2	R	U	
93/05	NPCC	NE	CT	NOEU	DEVON 5	48[a]	ST	FO6	R	U	
93/05	NPCC	NE	CT	NOEU	DEVON 6	68[a]	ST	FO6	R	U	
93/05	NPCC	NE	CT	NOEU	MIDDLETOWN 1	69.5	ST	FO6	R	U	
93/05	SERC	FL	FL	TALL	SAM O. PURDOM 1-2R	0	ST	FO6	R	U	
93/05	SERC	FL	FL	TALL	SAM O. PURDOM 3-4R	0	ST	FO6	R	U	
93/05	SPP	N	KS	EMDE	RIVERTON 6	32	ST	NG	R	U	
93/06	WSCC	NWP	WA	BPA	HANFORD 1	420	ZZ	PL	R	U	
93/06	WSCC	NWP	WA	BPA	HANFORD 2	420	ZZ	PL	R	U	
93/07	WSCC	CNV	NV	NEVP	CLARK 5	70	GT	NG	R	U	
93/07	WSCC	CNV	NV	NEVP	CLARK 6	70	GT	NG	R	U	
93/10	ECAR		OH	CG&E	Dicks Creek GT 3	14	GT	NG	R	U	
93/10	ECAR		OH	CG&E	Dicks Creek GT 4	15	GT	FO2	R	U	
93/10	ECAR		OH	CG&E	Dicks Creek GT 5	15	GT	FO2	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE 1	13.5[b]	ST	FO6	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE 3	0[b]	ST	FO6	R	U	
93/11	NPCC	NE	MA	COMW	BLACKSTONE 4	2[b]	ST	FO6	R	U	
93/12	SPP	SE	AR	MSUI	LAKE CATHERINE 3	90	ST	NG	R	U	
93/12	SPP	SE	LA	MSUI	NINEMILE 2	90	ST	NG	R	U	
93/12	SPP	SE	MS	MSUI	DELTA 1	95	ST	NG	R	U	
93/12	SPP	SE	MS	MSUI	DELTA 2	95	ST	NG	R	U	
93/12	SPP	SE	MS	MSUI	REX BROWN 1	36	ST	NG	R	U	
93/12	SPP	WC	TX	SOEP	LONE STAR 2	13	GT	FO2	R	U	
93/12	SPP	WC	TX	SOEP	LONE STAR 3	13	GT	FO2	R	U	
93/12	SPP	WC	TX	SOEP	LONE STAR 4	14	GT	FO2	R	U	
93/UN	NPCC	NB	NB	NBPO	Grand Lake #5	4.8	ST	COL	R	U	
93/UN	NPCC	NB	NB	NBPO	Grand Lake #6	4.8	ST	COL	R	U	
93/UN	NPCC	NB	NB	NBPO	Grand Lake #7	14.5	ST	COL	R	U	
SUBTOTAL						1949					

[a] *Candidates for repowering in a combined cycle configuration.*

[b] Candidates for life extension.

North American
Electric
Reliability
Council

APPENDIX N
GENERATING UNIT RETIREMENTS (UTILITY AND NON-UTILITY-OWNED)
(January 1, 1988 - December 31, 1997)

RET DATE	REGION	SUBREG	ST/PROV	UTILITY	NAME	MW-S	TYPE	FUEL	STATUS	U/NU	JOINT
94/01	ERCOT		TX	TUEC	DALLAS #3	75	ST	NG	R	U	
94/01	ERCOT		TX	TUEC	DALLAS #9	70	ST	NG	R	U	
94/01	ERCOT		TX	TUEC	MOUNTAIN CREEK #6	115	ST	NG	R	U	
94/01	SERC	FL	FL	GAMW	J. R. KELLY 3	14	CT	NG	R	U	
94/05	MAAC		MD	DPLC	Easton 7	2	IC	FO2	R	U	
94/06	SERC	SOU	AL	ALEC	McWILLIAMS 1	10	ST	COL	R	U	
94/06	SERC	SOU	AL	ALEC	McWILLIAMS 2	10	ST	COL	R	U	
94/07	WSCC	CNV	NV	NEVP	CLARK 7	70	GT	NG	R	U	
94/07	WSCC	CNV	NV	NEVP	CLARK 8	70	GT	NG	R	U	
94/07	WSCC	RMP	CO	CEC	PUEBLO 1	8	ST	NG	R	U	
94/12	SERC	FL	FL	FOPC	KING 6	17	ST	NG	R	U	
94/12	SPP	SE	AR	MSUI	H. COUCH 2	122	ST	NG	R	U	
SUBTOTAL						583					
95/01	ERCOT		TX	TUEC	HANDLEY #1	45	ST	NG	R	U	
95/01	ERCOT		TX	TUEC	PARKDALE #2	115	ST	NG	R	U	
95/01	SERC	FL	FL	HSTM	G. W. IVEY 11-12	7	IC	NG	R	U	
95/05	MAPP		NE	NPPD	DAVID CITY 2	.80	IC	NG	R	U	
95/05	MAPP		NE	NPPD	DIESEL GROUP 1	3.95	IC	FO2	R	U	
95/07	WSCC	RMP	CO	CEC	PUEBLO 2	8	ST	NG	R	U	
95/10	ECAR		OH	CG&E	Dicks Creek GT 1	92	JE	NG	R	U	
95/10	MAIN	CE	IL	CECO	WAUKEGAN 6	100[a]	ST	SUB	R	U	
95/12	SPP	SE	LA	MSUI	NINEMILE 3	125	ST	NG	R	U	
SUBTOTAL						497					
96/01	ERCOT		TX	TUEC	HANDLEY #2	80	ST	NG	R	U	
96/01	SERC	FL	FL	GAMW	J. R. KELLY 7	20	ST	NG	R	U	
96/01	SERC	SOU	AL	SOEG	GASTON A	16	CT	OIL	R	U	J
96/06	ERCOT		TX	CP&L	LA PALMA #7	43	GT	NG	R	U	
96/10	MAIN	CE	IL	CECO	STATE LINE 3	187[a]	ST	SUB	R	U	
96/10	WSCC		AB	APL	SIMONETTE	12	GT	NG	R	U	
96/11	MAPP		MN	SMMP	GRAND MARAIS 5	1.12	IC	FO2	R	U	
SUBTOTAL						359					
97/01	ERCOT		TX	TUEC	MORGAN CREEK #2	22	ST	NG	R	U	
97/01	ERCOT		TX	TUEC	MORGAN CREEK #3	44	ST	NG	R	U	
97/05	MAAC		MD	DPLC	Easton 8	2	IC	FO2	R	U	
97/10	MAIN	CE	IL	CECO	WILL COUNTY 1	151[a]	ST	SUB	R	U	
97/10	MAIN	CE	IL	CECO	WILL COUNTY 2	148[a]	ST	SUB	R	U	
97/10	MAIN	CE	IL	CECO	WILL COUNTY 3	251[a]	ST	SUB	R	U	
97/11	NPCC	NE	NH	PSNH	MERRIMACK JET 1	17[b]	JE	FO1	R	U	
97/11	NPCC	NE	NH	PSNH	WHITE LAKE JET	17.5[b]	JE	FO1	R	U	
97/12	ECAR		MI	DECO	Marysville 6,7,8	165	ST	COL	R	U	
97/12	ERCOT		TX	WETU	ABILENE #3	8	ST	NG	R	U	
97/12	ERCOT		TX	WETU	ABILENE #4	18	ST	NG	R	U	
97/12	ERCOT		TX	WETU	CONCHO #3	15	ST	NG	R	U	
97/12	ERCOT		TX	WETU	FT. STOCKTON #2	5	GT	NG	R	U	
97/12	ERCOT		TX	WETU	LAKE PAULINE #1	19	ST	NG	R	U	
97/12	SPP	SE	LA	MSUI	MICHOUD 1	113	ST	NG	R	U	
SUBTOTAL						996					
TOTAL						7325					

---

[a] Retirement is tentative and principally based upon age. The actual retirement may occur sooner or later as *conditions may warrant.*

[b] Candidates for life extension.

CODES FOR
GENERATING UNIT ADDITIONS AND RETIREMENTS
(Appendixes D through N)

UNIT TYPE

ST	Steam Turbine-Non Nuclear
NB	Steam-BWR Nuclear
NP	Steam-PWR Nuclear
NH	Steam-HTGR Nuclear
CD	CANDU
IC	Internal Combustion
GT	Combustion Turbine (Gas Turbine)
HY	Conventional Hydro
PS	Pumped Storage Hydro
CW	Combined Cycle-Steam Portion-Waste Heat Only
CA	Combined Cycle-Steam Portion-Auxiliary Fired
CT	Combined Cycle-Combustion Turbine Portion
CC	Combined Cycle
IG	Integrated Coal Gasification Combined Cycle (IGCC)
CG	Cogeneration
JE	Jet Engine
FC	Fuel Cell
SO	Solar
WM	Wind Power
GE	Geothermal
ZZ	None of the above
UN	Unknown at this time

CONSTRUCTION STATUS

P	Planned for installation, but not utility authorized
L	Regulatory approval pending, but not under construction
T	Regulatory approval received, but not under construction
U	Under construction, less than approximately 50% of plant completed
V	Under construction, greater than approximately 50% of plant completed
R	Planned for retirement

OWNERSHIP (or U/NU)

U	Utility
CG	Non-utility Cogenerator
ZZ	Non-utility Small Power Producer

FUEL TYPE

WH	Waste Heat
COL	Coal-General
BIT	Bituminous Coal
SUB	Sub-Bituminous Coal
ANT	Anthracite Coal
LIG	Lignite Coal
PC	Petroleum Coke
LNG	Liquified Natural Gas
MTH	Methanol
GAS	Gas-General
NG	Natural Gas
RG	Refinery Gas
BFG	Blast Furnace Gas
COG	Coke Oven Gas
UNK	Unknown at this time
GST	Geothermal Steam
MUL	Multi-Fueled
REF	Refuse-Solid Waste
OIL	Oil-General
FO1	No. 1 Fuel Oil
FO2	No. 2 Fuel Oil
FO4	No. 4 Fuel Oil
FO5	No. 5 Fuel Oil
FO6	No. 6 Fuel Oil
CRU	Crude Oil
TOP	Top Crude Oil
JF	Jet Fuel
KER	Kerosene
LPG	Liquid Propane Gas
RRO	Re-Refined Motor Oil
SNG	Synthetic Natural Gas
UR	Uranium
PL	Plutonium
WAT	Water
TH	Thorium
SUN	Sun
WND	Wind
G/C	Gas and/or Coal
O/C	Oil and/or Coal
W/G	Wood and/or Gas
W/O	Wood and/or Oil
WOD	Wood
WD	Wood and Wood Waste
PEA	Peat
ZZ	None of the above

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL
REGIONS AND SUBREGIONS

REGIONS	COUNTRY	SUBREGIONS
ECAR East Central Area Reliability Coordination Agreement	U.S.	None
ERCOT Electric Reliability Council of Texas	U.S.	None
MAAC Mid-Atlantic Area Council	U.S.	None
MAIN Mid-America Interconnected Network	U.S.	**CE** -**CMNWLTH EDISON**-Commonwealth Edison Company Subregion
	U.S.	**EM** -**EAST MISSOURI**-East Missouri Subregion
	U.S.	**SCI** -**S CENT ILLINOIS**-South Central Illinois Group
	U.S.	**WUM** -**WIS-UPPER MICH**-Wisconsin-Upper Michigan Subregion
MAPP Mid-Continent Area Power Pool	U.S.	None
	CANADA	None
NPCC Northeast Power Coordinating Council	U.S.	**NY** -**NEW YORK**-New York Power Pool
	U.S.	**NE** -**NEPOOL**-New England Power Pool
	CANADA	**NB** -**NEW BRUNSWICK**-New Brunswick Electric Power Commission
	CANADA	**NS** -**NOVA SCOTIA**-Nova Scotia Power Corporation
	CANADA	**ONT** -**ONTARIO**-Ontario Hydro
	CANADA	**QUE** -**QUEBEC**-Hydro-Quebec
SERC Southeastern Electric Reliability Council	U.S.	**FL** -**FLORIDA**-Florida Subregion
	U.S.	**SOU** -**SOUTHERN**-Southern Subregion
	U.S.	**TVA**-Tennessee Valley Authority Subregion
	U.S.	**VAC** -**VACAR**-Virginia-Carolinas Subregion
SPP Southwest Power Pool	U.S.	**SE** -**SOUTHEAST**-Western Mississippi, Southeastern Texas, Eastern Arkansas, Southeastern Missouri, and Louisiana
	U.S.	**WC** -**WEST CENTRAL**-Western Arkansas, the Texas Panhandle, Northeast Texas, and Oklahoma
	U.S.	**N** -**NORTHERN**-Western Missouri and Kansas
WSCC Western Systems Coordinating Council	U.S.	**NWP** -**NW POOL**-Northwest Power Pool Area
	U.S.	**RMP** -**ROCKY MT AREA**-Rocky Mountain Power Area
	U.S.	**AZN** -**ARIZONA-N. MEX**-Arizona-New Mexico Power Area
	U.S.	**CNV** -**CALIF-SO. NEV**-California-Southern Nevada Power Area
	CANADA	None
	MEXICO	None

North American
Electric
Reliability
Council

101 COLLEGE ROAD EAST
PRINCETON, NEW JERSEY 08540-6601

609-452-8060